A McGraw-Hill Publication
San Francisco, Calif.

October 1, 1925
25 Cents

Journal of Electricity

Devoted to the Economic Production and Commercial Application of Electricity
IN THE ELEVEN WESTERN STATES

Meadows
TRADE MARK REGISTERED

Thousands of opportunities to render "A PERFECT SERVICE" await the alert dealer who places Meadow Washers in the homes of his community.

"PERFECT" because he creates permanent friendships and ample profits, neither of which are endangered through the need for adjustments.

Never before has the Western Market been so prepared for the dealer who is a merchant. In over a half million homes the story of the economy of handling household tasks with electrical appliances is being told by hundreds of Public Utility Salesmen. Our selling plan capitalizes that splendid work, ties in with it and provides a means of financing installment sales.

Write for the details of our franchise for your territory.

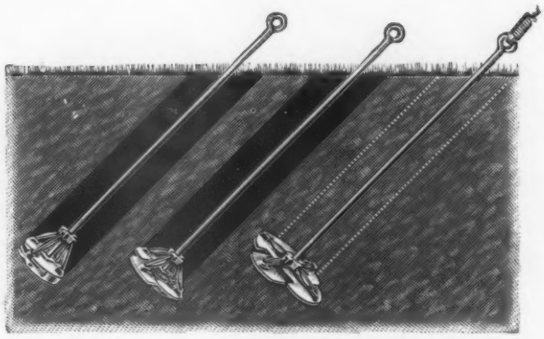
THE MEADOWS MANUFACTURING COMPANY
General Offices and Plant, Bloomington, Illinois

WESTERN DISTRIBUTORS:
Walcherson Electric Sales Company
373 Brannan St., San Francisco, Calif.
Butte Electric Company, Butte, Montana

CLIFFORD A. WILLIAMS
Western Sales Manager
373 Brannan Street, SanFrancisco, California

WESTERN DISTRIBUTORS:
Capitol Electric Co., Salt Lake City, Utah
Fobes Supply Company, Seattle, Wash.
Fobes Supply Company, Portland, Ore.

EVERSTICK
ANCHORS



Closed

Permanent Installations

Guy wire installations are permanent when Everstick Anchors are used. The use of the Everstick Installing Bar insures complete expansion of the blades at right angles to the Guy rod. The entire circumference of the anchor plate then has a permanent grip in solid earth. They are easily and quickly installed. You can bury your Guy wire troubles with Everstick Anchors.

Closed

Fully Expanded
TWO-WAY

Fully Expanded
FOUR-WAY

MANUFACTURED BY

THE EVERSTICK ANCHOR COMPANY

ST. LOUIS, MISSOURI

Pacific Coast Stocks Carried By

BAKER-JOSLYN COMPANY

DISTRIBUTERS

ELECTRICAL EQUIPMENT AND CONSTRUCTION MATERIALS

SAN FRANCISCO LOS ANGELES

Journal of Electricity entered as second class matter February 17, 1921, at the post office at San Francisco, under the Act of Congress, March 3, 1879.
Published the 1st and 15th of each month, at 883 Mission Street, San Francisco, California.

OCT 12 1925
© C1B669190

Journal of Electricity

With which is consolidated the "Electrical Journal" and the "Journal of Electricity, Power & Gas."

Devoted to the Economic Production and Commercial Application of Electricity

IN THE ELEVEN WESTERN STATES

A McGraw-Hill Publication

Published Semi-Monthly

Established 1887

C. T. HUTCHINSON, Editorial Director
G. C. TENNEY, Managing Editor

G. R. HENNINGER, Associate Editor
R. N. PHELAN, Associate Editor

W. A. CYR, Associate Editor
B. H. SNOW, Northwest Editor

VOLUME 55 | SAN FRANCISCO, OCTOBER 1, 1925 | NUMBER 7

Contents

Editorials 233

Important Triad Discussed at Pacific Coast Convention of A.I.E.E. 237

High-tension transmission, engineering research and education, and distribution practice were the main subjects of interest at this important conference of electrical engineers.

Edison Company Seeks 100,000 Owners in Unique Club Sales Plan 242

A California utility devises a new method to enlarge its list of customer-owners.

Record Convention Held by Rocky Mountain Division, N.E.L.A. 243

A report of a particularly interesting meeting, of which size and diversity of attendance and a discussion of state regulation, the development of the Colorado River and public relations were outstanding features.

Discussion 235

Central Station Construction, Operation and Maintenance 248

Ideas for the Contractor 252

Better Merchandising 256

News of the Industry 260

Book Reviews 268

Meetings 268

Personals 269

Trade Notes 271

McGRAW-HILL COMPANY OF CALIFORNIA — 883 Mission St. — SAN FRANCISCO
Northwest Office: 1206 Spalding Building, Portland, Ore.
Publishers of JOURNAL OF ELECTRICITY

JAMES H. McGRAW, President | C. T. HUTCHINSON, Vice-Pres. & Gen. Mgr. | J. W. OTTERSON, Secretary & Treasurer

WASHINGTON, Colorado Building
CHICAGO, 7 South Dearborn Street
PHILADELPHIA, Real Estate Trust Building
CLEVELAND, Leader-News Building
ST. LOUIS, Star Building
NEW YORK, Tenth Ave. at 36th St.

Subscription rates in United States, Canada, Mexico, Porto Rico, U. S. Possessions, Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Nicaragua, Panama, Guatemala, Paraguay, Peru, Honduras, Salvador, Uruguay, and Spain, $2.00 per year, 2 years $3.00. Elsewhere $3.00 Gold (13 Shillings). Single copy, 25c. When change of address is required, both old and new addresses must be given. Notice must be received two weeks before change takes place.

McGRAW-HILL CO., Inc., New York
Publishers of
American Machinist—European Edition (*Published in London*)
Industrial Engineer (*Published in Chicago*)
Electrical Merchandising
Chemical and Metallurgical Engineering
American Machinist
Electrical World | Electric Railway Journal
Engineering and Mining Journal-Press
Bus Transportation | Engineering News-Record
Coal Age | Radio Retailing | Power

Copyright, 1925
By McGraw-Hill Company of California

Entered as second-class matter Feb. 17, 1921, at the Post Office at San Francisco, California, under Act of March 3, 1879.

Member Audit Bureau of Circulation

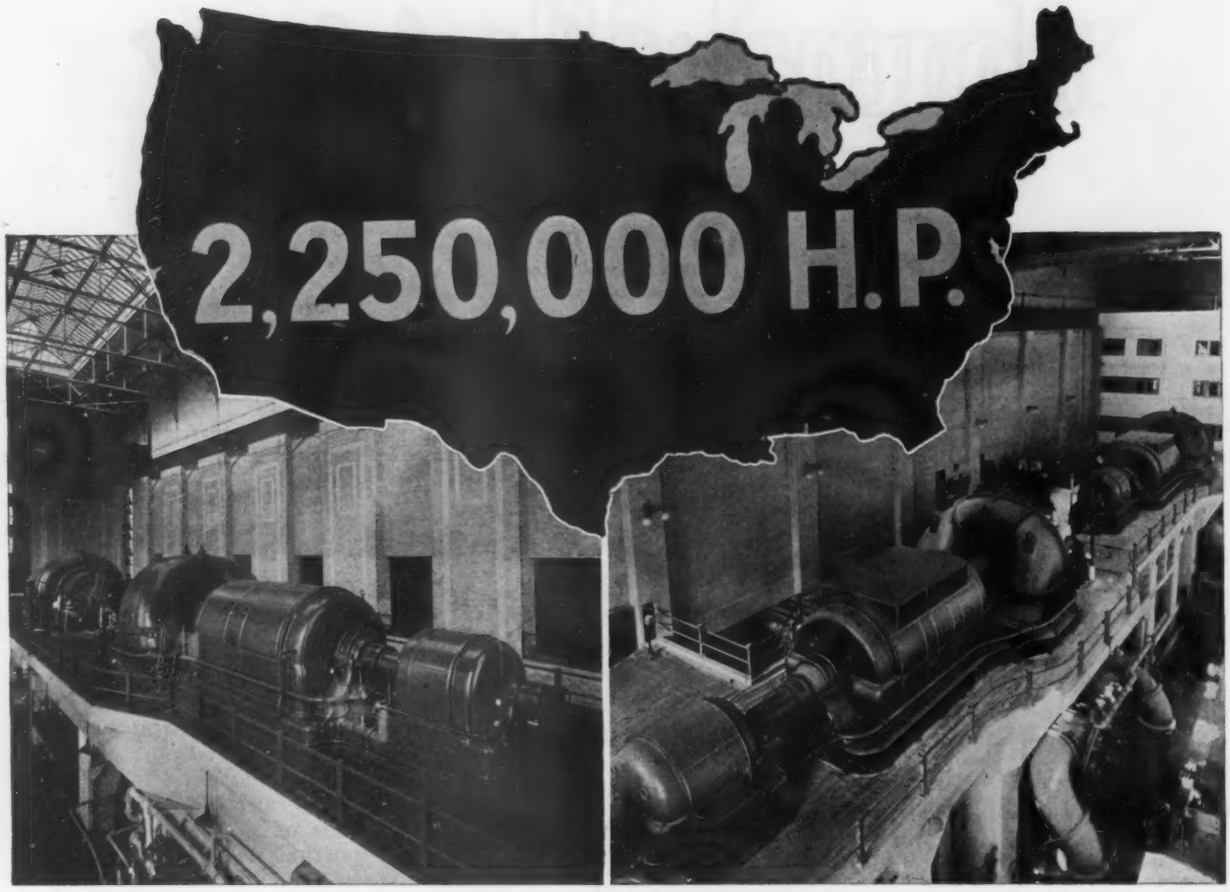
Printed in U. S. A.

What Will Close Scrutiny of Your Market Reveal?

IN an attempt to arouse a national appreciation of the need for improving industrial sales efficiency and to awaken a keener interest in the correct principles of industrial selling, the McGraw-Hill Company is publishing a series of advertisements in some of the important newspapers of the country. In these advertisements are emphasized the McGraw-Hill "Four Principles of Industrial Marketing," namely, market determination, buying habits, channels of approach, and appeals that influence.

In this issue on pages 40-41 is reproduced the fifth advertisement of this series showing how one manufacturer by applying these four principles discovered new opportunities for increased sales and profits. The pertinent query, "What Will Close Scrutiny of Your Market Reveal?", brings the matter directly home to the individual or organization with something to sell. Emphasizing the necessity for a true inventory of sales possibilities, the McGraw-Hill Company offers to assist manufacturers and their advertising agents in analyzing their markets and applying the four principles to their own selling and advertising; it places at their disposal its knowledge of industry gained through fifty years of intimate contact; and, through its fifteen publications, presents for their guidance information on the activities of many industries.

As a first step in the analysis the reading of "Industrial Marketing" is suggested. This book, the results of a broad study of the buying habits of the industry, the McGraw-Hill Company will send upon request to any manufacturer whose market includes any of the industries covered by its publications.



Turbine Rooms of Super Power Stations Recently Completed
in Boston and Los Angeles

LOW construction costs and high economy are characteristic of Stone & Webster power stations. This is one result of an experience covering the whole era of steam station development. With the completion of the stations shown above, Stone & Webster power construction work exceeds 2,250,000 horse power.

STONE & WEBSTER

INCORPORATED

DESIGN · BUILD
OPERATE
FINANCE

BOSTON, 147 Milk Street
CHICAGO, First National Bank Bldg.
SAN FRANCISCO, Holbrook Bldg.

NEW YORK, 120 Broadway
PHILADELPHIA, Real Estate Trust Bldg.
PITTSBURGH, Union Trust Bldg.

EDITORIAL

Government Ownership Battleground Transferred to Oregon

NEWS that the State Grange, the Umatilla Rapids Association, the Housewives Council and other organizations in Oregon, backed by Governor Pierce, are attempting to get together on a constitutional amendment permitting the state to go into the power business on a large scale, and providing the funds and machinery therefor, is not altogether surprising. To suppose that Oregon politics, lying between the Water and Power Act on the south and the Bone Bill on the north, could escape infection is to make the wish father to the thought.

But one could have hoped that the state ownership proponents of Oregon might have learned from the experience of their colleagues in the two adjoining states, and have saved the citizens of that state the expense and grief of a bitter political battle over an issue similar to that which was defeated so overwhelmingly in California and Washington last year. However, people have been known not to learn from the experience of others, and the government-ownership proponents seem ever anxious to keep trying, both in the old fields and new, in an apparently everlasting endeavor to insert the entering wedge that might lead to an expansion of their activities.

Neither was it altogether a surprise to learn that Governor Pierce might take a hand in framing the legislation and even go so far as to adopt it as a major provision in his program for re-election There are many who believe that through his inability to keep his campaign promise of tax reduction he may feel that he has lost some of the political prestige which put him into office. His favorite scheme for economy, the state income tax, proved on trial to be not what it seemed and was repealed last year. It may be that, mistaking the pleas of the political ownership advocates as the voice of the people, he has determined upon what he considers a chance for leadership in this movement in the hope of regaining his political losses. Others have followed the same will-o'-the-wisp before, with varying degrees of success.

In spite of the merits of the case, or lack of them, there is bound to be a fight. Industrial history has proved that such a political program, when well prepared and planned, finds a ready reception from enough voters to make it a somewhat doubtful issue, one which cannot be laughed off easily. The electrical industry of the West has had experience with this sort of thing and knows it cannot sit back and let matters follow an unresisted course. It would seem, then, that it must prepare to take off its coat and roll up its sleeves as soon as the definite program is made known.

Glenwood Springs Convention Sets New Record

A RECORD for sectional National Electric Light Association conventions has been set by the Rocky Mountain Division at its recent Glenwood Springs meeting. In point of attendance it was the largest meeting ever held in this section; in excellence of program it followed closely behind the national convention at San Francisco; and with a program so arranged that meetings were held from 9:30 to 1 o'clock each day, ample time was provided for recreation.

The registration list not only showed representatives from practically every power company in the division, but manufacturers, jobbers and contractor-dealers as well. Representatives from more than a dozen newspapers attended the sessions. The program contained the names of men prominent in the electrical industry in the division, the governor of Colorado, Congressmen from both Utah and Colorado, utility commissioners from Colorado, Oregon and Kansas, the president of the Denver Chamber of Commerce, leading members of the Colorado bar, the mayor of the City and County of Denver, and the presidents of three leading Intermountain universities.

The frankness and enthusiasm with which the speakers attacked the problems of the division, namely, the Colorado River and the establishment of a sound utility commission law in Colorado, were inspiring. We recommend a careful study of the account of the convention in this issue by all members of the industry in the West so that they may become informed of the problems of the Intermountain states and the progress which is being made in meeting them.

Undeveloped Water Power and Super High-Voltage Transmission

THERE is a great deal of undeveloped water power in the Pacific Coast territory; more here in fact than in any other part of the United States. Political difficulties hedging about the Colorado River, plus a physical difficulty with reference to the large quantity of silt carried by that interesting river, would appear to delay that possibility of development for

some time to come. California is more nearly developed up to capacity than Oregon or Washington, and it does not require a soothsayer to be able to predict that before very long California's potential water power will have become wholly active. In the Northwest, however, this situation is much further away. In the Columbia River there is nearly one-seventh of the total potential water power in the United States and there are many other smaller projects offering great possibilities.

The market for this power, however, is the rub at present. This lends fresh interest to experiments now being conducted in what might be called super high-voltage transmission offering ranges of one thousand miles or more for the economical transmission of electrical energy. The possibility of an interconnected system in the United States whereby electrical energy generated on the Pacific Coast may be transmitted almost as far east as the Mississippi is not so wild a dream as may appear at first thought. People alive today may see a realization of the Baum plan or some modification thereof, and the prosperous and populous central territory made more fruitful by the blessings of electrical service, using energy generated in the mountains of the Pacfic Coast.

Clearing the Atmosphere for the Farmers

TO those unthinking, uninformed and misguided individuals of the Northwest (and they are by no means confined to the Northwest) who believe that the reason all farms are not electrified is because the government has not developed Umatilla Rapids or some other pet project, thereby making "cheap" power available, the recent report of the Oregon Committee on the Relation of Electricity to Agriculture will be a shock.

This report, in the form of a printed booklet entitled, "Electricity in Oregon Agriculture", reviewed on another page of this issue, contains a clean-cut presentation of the general and specific problems based on the field survey conducted in that state last year, and clears the atmosphere of the haze of doubt concerning the use of electricity in which the agricultural element is apt to labor. It reveals that the main problems are economic and agricultural rather than engineering and electrical.

Clothed with the authority of authorship by a committee having national recognition, and concurred in by members of that committee representing agriculture, this report certainly must carry weight with the farmers, and since it is desirable that the farmer have a more enlightened understanding of the problem and a more tolerant attitude toward the utility company that asks him for an advance payment on account of a line extension to serve him, it is a pleasure to learn that the committee is taking steps to give the booklet a wide distribution.

In the matter of rural electrification the electrical industry has done its part and stands ready to continue to do it. It has pioneered and experimented on its own initiative, and it has taken the first steps to bring together into cooperative effort the interests involved in the solution of the larger problem. It is fitting that the farmer be made to realize and accept his responsibility in the matter, and no way to make him realize it seems better than to put him in possession of the facts and findings in this and future reports of this committee.

Many of the statements and conclusions of the report have been known to the electrical industry for some time; for instance, ". . . . the art of generating and distributing electric current is well in advance of the art of using it on the farm. It is not a case of more power stations but of finding out whether or not an electric load of sufficient size can be built on the farm so that the farmer can afford to carry the necessary expense involved in furnishing service." It is doubtful if the farmer as a class has heard of this phase of the question, though demagogues may have told him and he may believe that, if all the water powers were developed, power would be so cheap that he could have service for a half a dozen lights and a flat iron even though he might be many miles off the utility company's lines.

Further, he probably never before has been told that, "In the last analysis the farmer is the man who will say whether or not electric service will be used in agriculture." Or that, "Once the essential facts regarding the economic uses of electricity are made available, its ultimate place in Oregon agriculture will be determined more by the initiative of the farmer than by any other agency." These and other truths in the report, from the mouth of his own committee so to speak, ought to awaken him to an appreciation of his own responsibility, and to offset to some extent the kind of patronizing demagogy to which he has been accustomed. Truly, in the hope of a possible meeting of the minds of apparently conflicting interests and in the expectation of better public relations for the power companies this booklet should be broadcast.

Ice Cream Manufacturer Is Refrigeration Salesman

POWER companies and manufacturers have a new salesman for electric refrigeration. He is the ice cream manufacturer. The experience in one western city in this respect may serve as a guide for central stations in other communities.

In this particular city the largest ice cream maker was quick to recognize the advantages of electric refrigeration to him. Servicing, that is, providing the dealers who retailed his product with ice and salt, cost this manufacturer an average of fifteen cents per gallon of ice cream delivered. With a small refrigeration unit operating on the commercial lighting rate installed in the candy, drug or other store selling his product this cost was reduced materially. In fact the saving was so great that the manufacturer found he could purchase refrigeration units and install them himself in the stores of those of his customers who would sign a contract to retail his product over a long period of months. In cases where the merchant was not willing to sign such a contract he offered a reduction in the cost of ice

cream of from fifteen to twenty cents per gallon, provided the merchant himself would install an electric ice cream cabinet.

Thus the power company in this particular community has a strong ally in selling electric refrigeration. It is able to use the sales argument of lower cost of product to those stores retailing ice cream, and it can point to the exceedingly low cost of electric refrigeration from the energy standpoint.

Newspapers Urge More Appliances in the Home

LET the home be supplied with equipment as modern as that of the office or the factory, is a slogan that the electrical industry well might adopt. Electric labor-saving devices have lightened work and increased production in both office and factory, but the home is far from being completely equipped with modern electric appliances. The editor of the "Oregon Statesman" of Salem, Ore., under the heading of "Lighten the Burden" recently took up in his columns the cause of the industry when he said:

"The modern office and even many farms are equipped with all sorts of conveniences, including labor-saving devices. At the same time only twenty per cent of the homes are thus provided. The vast majority of women are doing the same kinds of drudgery in the same hard way that they were done years ago.

"Every woman should demand that the home shall be given due consideration in modern progress and that the household burdens shall be lightened for her as they are for him who works in the office, factory or on the farm. And it is the duty, and should be the pleasure, of every man blessed with a home to respond favorably to these demands and conditions."

Do Members of the Electrical Industry Lack Courage?

OUR readers will be interested in an editorial appearing in the Electrical World Aug. 29 last. This editorial is entitled "Wanted—More Courage." Courage is a desirable attribute, and it seems that members of the electrical industry are reproached for their lack of this desirable characteristic in pushing sales of their wares.

We have with us John, Mary and their children, representing or typifying the great American household market. We have the spectacle of the aforesaid John and Mary buying their automobile complete with all accessories, not merely a motor one month, a transmission six months hence, a tire or two in a year, to be followed by a radiator and a body at some time in the distant future. This thought may seem absurd to many; nevertheless is not that the way the electrical industry is selling electrical appliances? Our merchants timidly suggest a flatiron. As their increment of courage increases they progress to a curling iron or a heater for shaving water; eventually they may get around to a water heater, an air heater or even a range. The Electrical World suggests that it is incumbent upon the electrical industry to figure for the customer ways and means of making the regular household budget pay for all appliances by setting up an easy-payment-plan contract and a regular schedule of appliances required to present a reasonably complete electrical household rather than to emulate the example of the mouse who only nibbles.

There is food for serious thought in this idea. In many parts of the West, notably in California, great campaigns are under way on the part of central stations for increasing the domestic load. It has been pointed out before in these columns that house-to-house canvassing rarely results in selling to more than one or two prospects out of twenty calls. The balance of eighteen remains at the disposal of the local representatives of the industry in each district traversed, requiring only a little further attention in the way of suggestion and solicitation with the proper follow-up to sell the electrical idea. With the sales effort now being made by the central stations as the ice-breaker, it ought not to be difficult for the rest of the industry to realize fully on the opportunity that is knocking at its door.

DISCUSSION

Discusses Contractor's Problem of Operating at a Loss

To the Editor:

Sir:—When a contractor-dealer can show a list of materials to be used on a job, the selling price of which is $2,504.34, cost price $2,130.00, with a gross profit of $374.34, it becomes apparent that the margin of profit is getting down alarmingly near rock bottom. It amounts to exactly 17.5 per cent in this case. Under normal circumstances it is well nigh impossible to operate a contractor-dealer establishment with an overhead of less than 20 per cent. Therefore this order costs this contractor-dealer money to handle, and it is apparent that a sufficient number of these orders will drive his concern into bankruptcy. If this supply house were the only one with this problem on its hands, the remedy would be quite obvious, but a careful analysis of the sale price of materials on this bill shows that they are not out of line with the prices quoted by other contractor-dealers.

Just what the solution to the problem of this increasing menace to the prosperity of the contractor-dealer is, it is impossible to say. General opinion has it that the old law covering the survival of the fittest will do its best to solve the problem. Wise contractor-dealers who have seen the writing on the wall already are exerting every effort to meet the condition by increasing their specialty sales or by educating their sales force to the value of pushing those particular items of stock which represent a fair margin of profit.

R. G. KENYON.

Los Angeles, Calif.,
Sept. 5, 1925.

A CURTAIN of spray is thrown across the stream when the by-pass valve of the Oak Grove hydro-electric plant of the Portland Electric Power Company is in operation. The Oak Grove plant operates at a head of 900 ft., supplied by a pipe line whose capacity is rated at 440 sec.ft., and the by-pass is capable of passing 330 sec.ft. as a maximum.

Important Triad Discussed at Pacific Coast Convention of A.I.E.E.

HIGH-TENSION transmission, engineering research and education, and distribution practice formed the three main subjects of interest at the Pacific Coast convention of the American Institute of Electrical Engineers, meeting in Seattte. The East brought its experience to the West, both profiting by the exchange of thought provided by this unusually worth-while convention, a digest of whose activities and papers is given herein.

THREE major lines of thought occupied the time and attention of the 300 members of the American Institute of Electrical Engineers gathered at the fourteenth Pacific Coast convention held at the Olympic Hotel in Seattle, Sept. 15-19. These three divisions of interest were: high-tension transmission, engineering research and education, and distribution practice. Several matters of vital and many of popular interest were presented and ably discussed there by well qualified men. The scope of experience represented in the twenty-six papers presented was broad, for it is notable that nearly a third of them were from the East. This fact itself demonstrated the interest of the East in the problems facing the electrical industry on the Pacific Coast.

High-Tension Transmission

Papers and discussions given subdivided the subject of high-tension transmission into two parts. One of these dealt with operating experiences with and characteristics of transmission systems. The other had to do with design.

Information brought out relative to the operation of existing long lines at 220 kv. dispelled persistent fears, beliefs and suspicions that many "mysterious" phenomena might be expected to be inherent in such lines. Disturbing transients, standing or traveling waves of damaging magnitude, serious switching and trouble-relief difficulties and other more or less expected bugaboos resulting from 220-kv. operation have failed to materialize. Short-circuits have been taken care of easily through quick acting relay and circuit-breaker combinations, the surges therefrom rarely disturbing system equilibrium. Flashovers in the most part have been traced definitely to birds and their lack of proper discretion, at least as far as Pacific Coast lines are concerned. Flashovers on eastern high-tension lines are due largely to lightning. In either case, however, the situation is well under control and even better results are to be expected in the future.

Far reaching and rather pointed discussion on the subject of the stability of power limits of any given transmission system brought out interesting facts. It is worth mentioning that the use of the term "stability" was questioned severely. It was pointed out that while the term was technically correct and understood by transmission engineers, it was a term which lent itself readily to misinterpretation in the public mind. The fact that engineers were considering the "stability" and the "instability" of these vital arteries of industrial and commercial life might easily be construed in a wrong light by the non-technical. Substitution of the more accurate and truly descriptive term "power limit" was thought to be far more desirable. Power limit suggests nothing startling to the uninitiated as it is recognized that there are limits to anything.

Power limit calculations have proved so nearly correct from operating experience that faith in such calculations has been strengthened materially. It was shown that characteristics of all machinery connected to a given system must be considered, in making these studies. The thought of those interested in wide interconnection between systems is that all of these factors should be considered carefully in order to outline clearly the logical and economical course to pursue in such interconnections.

Transmission line design was considered in three different papers. Simplified and more accurate methods of calculation were offered, showing that study and effort are being given toward securing even greater design and operating economy than now are common.

Research and Education

Research and education and the inter-relation between them received thoughtful consideration. It is difficult to cover in a few words the field of thought covered by the several able papers and the attendant discussion on the subject. However, some of the items of importance were:

The value of research to the industry.

The value of research in training the engineering student to think constructively.

The value to both to be had from greater cooperation between industrial research organizations and the universities.

Length, breadth and proper scope of logical training for engineering students.

These items brought out diversities of opinion, as might be expected. However, there seemed to be an agreement that proper training for an engineering student consists in bringing him sufficiently up to date to stand upon his own feet and take his place in contemporary development as well as in giving him a

sufficient understanding of human affairs to inspire him to be useful in fields other than the purely technical. Opinions differ as to whether courses should be four, five or six years in length.

Trend of Distribution

Principles and practices relative to power distribution occupied more time and energy than any other single feature of the convention. Two divisions of thought were noted. One of these was in the nature of a review of construction and operating practices and experiences and the other a study into future needs and possible developments.

Past experiences have provided some very tangible bases upon which to work and have shown an economic necessity for making extensions along definite plans. The division of utility activity known as distribution engineering has grown out of a gradual realization and appreciation of the vital operating and economic position of this phase of power work. It was graphically pointed out that the best possible generating and transmission system would be worthless without adequate distribution facilities; hence the development of this division of activity from "service-wagon engineering" to full-fledged recognition.

Just what the future and ultimate distribution voltage may be is a matter of opinion. Many things, not the least of which are local conditions, such as topography, resources and other items, are certain to have a decided effect upon the final decision. One definite trend is toward higher distribution voltage, and another is toward a greater development of the unit-type system wherein higher voltages than the present accepted 4 kv. will be unnecessary. However, when densities get up as high as 75,000 kw. per sq. mile, as in certain eastern centers, and prospects are for an increase to 200,000 kw. per sq. mile, there is some reason to expect that distribution voltages may be further increased.

The application of automatic protective devices to underground distribution systems and several novel means of increasing continuity of service were outlined in some of the papers and discussions.

Needs, results and methods of full cooperation between power and communication utilities on the problem of inductive interference received due consideration. There is some difference of opinion as to where the major responsibility rests, but it is agreed that some responsibility exists.

Indications are that it will be no real problem to effect an economic balance in and between the design and operation of power circuits and the design and operation of communication circuits so that both services may be fully efficient.

Dr. Suzzalo Opens Convention

Proclaiming himself as a humanist, Dr. Suzzalo, president of the University of Washington, graphically pictured the importance of institutions of higher learning when he said that, figuratively speaking, he had one foot in the world of science, business and engineering, in that he was studying the needs of that world in the way of future manpower and research. With the other foot in the university and its various activities, he was attempting to arrange the satisfactory education of those attending his institution to meet the demands which the outside world would place upon them upon their graduation. Responsibility for the education of the rising generation rests not alone upon the shoulders of those organizations devoted to that particular

DR. HENRY P. SUZZALO

field, but likewise rests equally upon the established industries of today.

Recognizing the great value of the large industrial research organizations, Dr. Suzzalo stressed the utmost importance of a greater and more complete understanding and cooperation between the industrial research organizations and activities and those similar branches of university work, if the greatest common economic good is to be realized. As research is a vital and fundamental part of industrial development, just so is research a vital and fundamental part of the work of a university in its endeavor to train men to serve present and future industrial needs. Therefore full cooperation between the two is highly advisable.

The successful engineer must be a citizen in the full sense of the word. He should have a knowledge of and an active interest in civic affairs. He should have a comprehension of economics, of politics and of the thought-exchange medium of the age, literature, as well as of other items of human interest. Whether the necessary knowledge of these things is to be obtained through an extension of engineering courses to cover an additional period of a year or two; whether the same end shall be accomplished through a suggested series of elective subjects from which the student may choose those he will study in parallel with his technical subjects; whether these side experiences shall be obtained solely through the school of hard knocks and actual operating experience after graduation, all this is a matter of open question, according to Dr. Suzzalo, and one to which much thought and study are being given by educational men as well as by practicing engineers. It seems indisputably logical that upon those of engineering training may be expected to fall any or all of the demands of present-day civilization.

In closing his address the doctor expressed a profound appreciation of the engineering vision "which builds its dreams upon realities and not upon high-sounding words nor phrases."

Dr. Ryan Responds

Promising a greater appreciation of the matters pertaining to the fields of engineering education and cooperative engineering research, Dr. Harris J. Ryan head of the electrical engineering department of Stanford University, Palo Alto, Calif., in his response to Dr. Suzzalo's opening address, called attention to

DR. HARRIS J. RYAN

the papers upon these very subjects scheduled to be read and discussed at the convention.

Briefly reviewing the development of the railroad systems as of twenty-five years ago and the closely following communication network now in such common use, Dr. Ryan pointed to a not-far-distant tomorrow and the realization of the present combined activities of executive and engineer toward power transmission networks through which the needs of humanity will be served even more expeditiously. It is his belief that each of these conventions forges a new link in an ever-lengthening chain of progress in the electrical engineering art and activities, and establishes a working plane upon which to do further constructive work. Dr. Ryan pointed out that the future holds not only the reclamation of the power resources of the jungles, and the full development of power possibilities as they are recognized today, but also the vast potentialities incident to the release of the vast storehouse of energy in matter itself.

National Secretary Speaks

Expressing regret that Dr. Michael Pupin, president of the Institute, was prevented from attending the convention by the press of matters requiring his attention, F. L. Hutchinson, secretary of the Institute, made a few remarks. Mr. Hutchinson outlined a few features and recent developments in Institute affairs and organization and also brought an echo of the Saratoga convention of the New England division.

President's Address via Telephone

Dr. Pupin delivered his address from New York City over the transcontinental telephone lines. It was an entire success. In his talk, "Engineering and Public Service," he mentioned the fact that Washington, Franklin and Jefferson all were engineers, and he outlined the value of their services to the nation because of their technical training. Many instances were cited to prove the necessarily close relation existing between the fields of scientific and human endeavor. Dr. Pupin lamented the apparent lack of interest of the technical man in civil matters of vital importance. The engineer, because of his training, is peculiarly fitted to render inestimably valuable service along non-technical lines, and Dr. Pupin exhorted him to recognize such opportunities and responsibilties. The erroneous and too widely held belief that all science is contrary to spiritual facts and humanistic needs is, in the president's belief, due to the devotion of scientific men to their work and their consequent failure to assume their proper place in the community.

TECHNICAL SESSIONS

In order to give a general idea of the different papers presented at the various sessions the following notes covering each one are offered. These are too brief to be dignified by the name of abstracts for no attempt is made to do more than present the more important high lights of each and the conclusions, if any, reached.

Stored Mechanical Energy in Transmission System

By J. P. JOLLYMAN, San Francisco

Performance of stored mechanical energy in moving masses connected synchronously to a transmission system, considered during changes in load, changes in input and changes of transmission capacity. Stored mechanical energy affects greatly the performance of a transmission line during sudden changes in line capacity occasioned by switching out or in a parallel circuit. Such switching operations lead to oscillations of input due to the interaction of stored mechanical energy and the altered difference in phase between generated and received voltages of a transmission line. A typical system is considered and some interesting figures arrived at. For instance, the total stored mechanical energy in a 27,000-kva., 225-r.p.m. hydro unit is 16.2 kw-hr. and in a 20,000-kva., 600-r.p.m. synchronous condenser is 11.5 kw-hr.

Transmission Line Design—Mechanical Design of Spans, with Supports at Unequal Elevations

By G. S. SMITH, Seattle

Derivation of practical method of design, based upon catenary formulas, for spans, the supports of which are at unequal elevations. Further intended to formulate completely method for applying the calculations to any cable freely suspended or uniformly loaded and for obtaining cable characteristics after temperature or loading conditions have changed. Present needs for more accurate computation methods surveyed briefly. Several formulas given, their derivation explained and application illustrated by typical line problems. Two alternative methods of application given and explained.

Data entered upon a complete set of forms, so tabulated and identified that by supplying proper constants same set of calculations may be applied to similar span problems. Computation method derived has the great advantage that once a representative set of calculations is made and results interpreted by curves, any similar span problem may be solved therefrom. Method is particularly adapted to relatively long spans.

The Long Span Across the Narrows at Tacoma

By J. V. GONGWER and A. F. DARLAND, Tacoma

Interesting points in this paper concern 316-ft. transmission towers being built for 6,200-ft. span in 110-kv. Cushman-Tacoma line, 37-strand steel conductor used for the span, method of arranging 12 parallel strings of insulators used per conductor end, and use of buried, 20-cu.yd. concrete anchors.

220-kv. Transmission Transients and Flashovers

By R. J. C. WOOD, Los Angeles

Conclusion reached that birds are chief cause of flashovers on high tension lines of the So. Calif. Edison Company. Gives a tabulation of location and frequency of flashovers covering period of nine years' operation at 150 kv. and two years at 220 kv. Great increase (250 per cent) in flashovers experienced when line voltage first raised to 220 kv. Has been overcome completely and number reduced to previous figures by installing bird guards at sources of worst trouble. Guards, however, not completely bird-proof. Further experimenting being

done. Other possible flashover causes considered, including corona, standing and traveling waves of high voltage, harmonic resonance, sustained high-frequency effects, lightning, and highly ionized air. Investigations to discover presence of such disturbances described include use of home-made photographic surge recorder, the klydonograph and the oscillograph. Amplitude of voltage surges caused by various switching operations and quantities of tertiary and residual currents at the different stations tabulated. Conclusions reached are: Corona in amount found upon arcing horns did not cause flashovers. Voltage surges of sufficient magnitude to cause flashover or damage to equipment do not occur. Voltage rises as great as any recorded arise from switching. Voltage rises recorded at or about time of two flashovers may have been due to subsequent switching and were less than many known to have arisen from switching. High tension switching as practiced on the Edison system may be done without fear of danger. Only occasionally did voltage surges travel even 35 miles without great attenuation. Such alternating surges as were found were highly damped, being usually of but one alternation. There were no harmonic resonances nor distortion of voltage wave shapes. Residuals to ground were small. There were no high frequency effects.

Fundamental Considerations of Power Limits of Transmission Systems

By R. E. DOHERTY and H. H. DEWEY, Schenectady

Discuss need of study at present time in view of probable extension of inter-connection between systems. Necessity of quick acting voltage regulation on synchronous apparatus discussed. Suggest certain changes in machine design. Suggest possible use of mercury arc rectifier in generator field circuit.

Transmission Stability

By C. L. FORTESCUE, Pittsburgh

Preparing way for further papers on subject to be presented at midwinter convention in East, author gives brief history and discussion. Necessity of studying characteristics of all machinery connected to a system is pointed out. Brief sketch of effect of such factors as inertia of moving parts, mechanical torque, speed of relay and circuit breaker operations, etc. Author's conclusions as to two most important means of getting most out of present-day designs are: Improved inherent regulation of machine. Increased speed of excitation.

Steam Power in its Relation to the Development of Water Power

By R. C. POWELL, San Francisco

Attention drawn to desirability of water power resource development on comprehensive economic basis. Discusses relations existing between development of steam power and economic development of water power. Secretary Hoover's statements at N.E.L.A. convention quoted in support of contention that failure to develop steam power in proper proportion and skimming of cream of hydro development will inevitably forestall complete development of water power resources. Limitations of cost curves frequently used comparing costs of steam power and water power outlined. Simple method given whereby minimum cost of power may be found for an assumed water power development with auxiliary steam power. Specific examples worked out by suggested means, show power costs lower for combined development than for all water power development. Fuel prices, load factor and other significant figures taken into account.

Application of Electric Propulsion to Double-Ended Ferry Boats

By A. KENNEDY, JR., and F. V. SMITH, Schenectady

Outlines tests, compares cost and operating characteristics of electric and other means of propulsion. Double-ended boats are only logical craft for handling short run traffic in congested harbor waters. Concludes that reciprocating steam or Diesel engine operating bow and stern propellers at same rotational speed require 19 per cent more power than electric system due to propulsive efficiency differences. Fuel consumption of reciprocating steam engine drive with direct-connected bow and stern propellers requires 40 per cent more power than turbine electric system due to differences in propulsive and thermal efficiencies. Comparing turbo direct current and alternating current, direct current is superior in flexibility, simplicity of control and general handiness afforded by bridge control. Alternating current slightly more economical as regards fuel consumption. Operating records prove electric drive reliable and a great step forward. Both turbo-electric and Diesel-electric drive overcome inherent propulsive efficiency loss of reciprocating steam engine type drive. Respective spheres of application dependent upon relationship of first cost to operating charges and needs of service.

Some Features and Improvements on High-Voltage Wattmeter

By J. S. CARROLL, Palo Alto, Calif.

Instruments for measurement of power and voltage at high potentials without use of connections with supply transformers described. Uniqueness and ingenuity of equipment devised are interesting.

On the Nature of Corona Loss

By C. T. HESSELMEYER and J. K. KOSTKO, Palo Alto, Calif.

Conducting qualities of air under certain stresses dealt with as suggested by title.

The Study of Ions and Electrons for Electrical Engineers

By HARRIS J. RYAN, Palo Alto, Calif.

A contribution to educational activities of the Institute. Would arouse interest on part of engineers for the study. Paper is brief. Suggests that knowledge of more important factors in behavior of ions and electrons should be helpful to all electrical engineers.

Engineering Research—An Essential Factor in Engineering Education

By C. E. MAGNUSSON, Seattle

Suggests industrial organizations establish numerous research fellowships in engineering colleges, not as gratuities but as necessary investments against their own future need of properly trained staff additions. Cooperative work between research departments of industrial organizations and educational institutions increased. Some form of bonus system be established by which engineering colleges would receive financial returns from industrial organizations for having discovered and trained exceptionally successful engineers.

Educational institutions take out patents on new ideas of commercial value originated by faculty members; that is, expand and make effective the plan recently adopted by Columbia University.

Research foundations established as integral parts of engineering colleges.

Larger share of normal income of educational institutions be expended upon investigational work.

An exchange of engineers between and among engineering faculties, industrial organizations and perhaps even between European and American investments.

The Relation Between Engineering Education and Research

By R. W. SORENSEN, Pasadena, Calif.

Outlines efforts of California Institute of Technology to meet present-day technical educational requirements by extending regular course to five years. History, English, economics, and other important subjects part of regular curriculum. Special attention given research work. Surveys made among students to determine motives causing students to enter. Stricter entrance requirements have reduced first-year failures.

A New Departure in Engineering Education

By HAROLD PENDER, Philadelphia

Six-year course combining ordinary college and engineering courses and capable of completion by high school graduate described. Believes: Will give student opportunity to form more mature judgment as to his aptitude for engineering and, if lacking, permit him to continue other studies without handicap.

Will impress on both student and parent that engineering is profession and not trade; more to engineering education than mere fitting to get a job.

The graduate from such course will be as well prepared for his immediate undertaking as usual technical school graduate. Will have background and broader viewpoint necessary to development in his profession, and proper perspective of life.

Distribution Line Practice of the San Joaquin Light & Power Corporation

By L. J. MOORE and H. H. MINOR, Fresno, Calif.

Practice of that company in serving rural communities; also covers briefly pole handling methods, spans and conductors used, a special 11.5-kv. fuse developed by the company and other items. Economies effected by its hot-wire maintenance methods and tools in 11.5-kv. line maintenance discussed. Outlines unusual 2-3-kv. automatic voltage regulating system used in Fresno.

Improvement in Distribution Methods

By S. B. HOOD, Minneapolis

Maintains protective measures applied to low-voltage distribution network can be utilized to improve operating characteristics of entire distribution system, and lower installation cost. Broad development of common-neutral system discussed as applied to system of Northern States Power Company. Heavy-duty alternating current underground network and remote-control multiple street-lighting systems described are listed as inter-related with common-neutral development. In-

teresting feature mentioned is return to multiple system of street lighting wherein distribution done at regular distribution voltages and normally closed, remotely controlled, contactor controls local lamp circuit. Claimed that power losses during daylight hours in contactors are negligible compared to high-tension series transformer losses.

The 60-Cycle Distribution System of the Commonwealth Edison Company

By W. G. KELLEY, Chicago

System's energy generated in five stations and transmitted at 12 kv., 3 phase, to both manually operated and remotely controlled substations. Operation of latter under control of former by means of control-wire and selector-switch operation. Larger customers supplied by industrial substations located on premises and fed from 12-kv., 3-phase, underground loop circuits. General load supplied by means of 2.3/4-kv., 3-phase, 4-wire radial circuits from various manually operated and remotely controlled substations. Generator capacity was 420,000 kva. and maximum load 379,000 kva. (Jan. 1, 1925,) for 60-cycle portion of system, exclusive of load carried on 25-cycle and direct-current portions of plant. Reliability of service is provided by relay-controlled oil circuit breakers, current, limiting reactors, duplicate supply lines and tie-points for the inter-connection of different parts of system. Rapid growth of load density in some parts of Chicago will soon necessitate modification of present distribution system, either by increasing in distribution voltage or circuit capacity.

A High-Voltage Distributing System

By G. H. SMITH, Seattle

Seattle muncipal system now operating at 26 kv. Plan is to carry high-voltage lines close to load centers, keeping secondary lines short. Each 26-kv. line either returns in loop to opposite half of originating bus or ties on another station bus. Voltage chosen because capable of handling sufficiently large blocks of power to take care of growth and may be applied to underground cable use as being conservative.

Distribution to Supply Increasing Load Densities in Residential Areas

By M. T. CRAWFORD, Seattle

Grid-form of service network of uniform conductor size laid out to cover entire residential area and designed to care for maximum load density without reconstruction. As load densities increase, additional feeders may be run and grid or net work fed at increasing number of points. The system is most flexible and voltage regulation is effected within two per cent. Heavy power load carried on 13-kv. loop feeders. Advantages claimed: Construction economy under conditions of light-load density followed later by rapid growth. Ability to meet more exacting requirements of voltage regulation and service reliability demanded by increase in domestic use.

Distribution Practices in Southern California

By R. E. CUNNINGHAM, Los Angeles

Substations, lines and local transformer installations described. Notes especially general use of 3-phase transformers on 11- and 15-kv. systems in sizes of from 10 to 100 kw., Y-connected on the high side with variable taps on neutral legs, permitting service of light, heat and power from single unit.

Power Distribution and Telephone Circuits

By H. M. TRUEBLOOD, New York, and D. I. CONE, San Francisco

Inductive and physical relations between two classes of circuits involve consideration of details of design of both systems, each expanding rapidly and having goal of universal electric service. Location, design, construction, operation and maintenance of both systems must consider plant and human safety and suitable provisions for expansion. Residual currents in power-distribution systems as outstanding cause of inductive interference on telephone lines. Limitations of residual dependent upon the type of distribution. Telephone toll circuits, to avoid exposure by choice of locations usually possible and most satisfactory measure of prevention or mitigation. Telephone cables with continuous metallic sheaths, grounded continuously or at terminals helpful. Interference seldom produced by exposure to power circuits in underground cable. Design and construction of new plant for both classes of service, and choice of relief measures in existing cases, should be guided by sense of common responsibility to insure co-ordination during great growth anticipated.

Induction from Street Lighting Circuits

By R. G. McCURDY, New York

Discusses series street lighting circuits in relation to nearby telephone circuits. Have greater inductive influence in proportion to power transmitted than most other distribution circuits due to relatively large distortions in wave shapes of voltage and current on certain type circuits and to unbalanced voltages to ground occurring series layouts. Three general type lighting circuits discussed, alternating-current arc circuits, direct-current arc circuits supplied by mercury rectifiers, and alternating-current incandescent circuits. Incandescent type wherein lamps equipped with individual series transformers or auto transformers is most important. Measures for reducing interference from these lighting circuits discussed.

The Radio Interference Problem and the Power Company

By L. J. CORBETT, San Francisco

Summarizes complaints on radio interference. Typical causes in the various fields of utilization of electric power with the aim of indicating relative proportion chargeable to power companies. Radio industry itself through movable or extraneous sources, signal lines and equipment, power lines themselves, connected power company equipment, connected commercial loads, household circuits and appliances discussed. Location methods are described together with mitigation measures found effective.

Opportunities and Problems in the Electric Distribution System

By D. K. BLAKE, Schenectady

Illustrative electric service system analyzed to show importance of distribution system. Diversity factor and load factor employed to show effect of investment and losses. Alternating-current networks discussed relative to switching, induction regulators and alternating-current elevator equipment. Circumstances making single-pole switching preferable outlined. New, simple and effective connection of control circuits of induction regulators to insure stability in parallel-operated circuits described. Present status of alternating-current elevator equipment outlined with emphasis upon the merits of Ward-Leonard control where high-class service required. New translator network analyzed to show performance and inherent difficulties, giving 3-phase, 4-wire, 115/2,300-volt system in no way affecting consumers' meters or utilization devices. Says may be adopted on grounds of company policy rather than technical and engineering economic. Recent developments in carrier-current control for street lighting equipment encouraging. Static condensers located at the load center of distribution circuits prove economical in some cases. Various automatic and remote-control sectionalizing schemes under consideration to restore quickly service on feeders.

Engineering and Economic Features of Distribution System Supplying Increasing Load Densities

By L. M. APPLEGATE and W. BRENTON, Portland

Large savings possible by designing present systems conforming with future requirements determined from study of population, utilization increase, comparisons of total investment required, and annual operating costs. Points to 4-kv., 4-wire primary distribution. Portland Electric Power Company, standard methods and locally derived costs outlined.

ENTERTAINMENT PROGRAM VARIED

Nor was the convention one continuous and strenuous series of technical discussions. A well rounded program of entertainment and sports also had been arranged, including inspection trips to some of the Northwest's most notable electric projects. In the golf tournament, Wednesday afternoon, playing for the John B. Fisken cup, W. C. Heston was winner, with Prof. R. H. Dearborn second and P. M. Downing third. Simultaneously there were offered an inspection trip through the Cedar Lumber Manufacturing Company's plant, the substation of the Chicago, Milwaukee & St. Paul Railway, or to the real feature of the convention entertainment, the "K-B" boat. The reception to the officers was held Tuesday evening, and Thursday evening a dinner dance took the place of the usual banquet. Numerous teas and entertainment features, among them a special performance given by the Cornish School, were designed to make the stay of the ladies delightful during the convention. The Lake Cushman and Baker River hydroelectric developments were visited by many on Saturday, following the close of the convention.

Edison Company Seeks 100,000 Owners in Unique Club Sales Plan

NOT a drive, not a campaign in the ordinary sense, but a consistent effort to increase the number of partner-owners in one of California's greatest electric utilities to 100,000, is this plan whereby the employees of the Southern California Edison Company are seeking to enlarge their company's list of shareholders.

SINCE the inception of the customer-ownership idea in 1914 central stations operating in the West have tried with considerable success a number of plans laid out to further the ownership of stock by customers of the company. In most cases the stock has been sold directly by the companies, acting through a special stock sales department, or in a few cases through the entire personnel of the company. Both methods have proved satisfactory, according to the amount of time and energy put into the work.

A campaign that was not aimed primarily to sell stock or to finance the construction activities of the company but rather to increase the number of stockholders and customers and local citizens was put into operation recently by the Southern California Edison Company. While the plan contemplated the sale of stock by employees of the company, it was of an entirely different character from anything that had been tried by other western public utility companies.

In contemplating means of increasing the number of customer-owners, W. L. Frost, general commercial manager of the company, laid the structure for the new campaign upon the loyalty of the employees toward the company. To give the employees an opportunity to express this loyalty, the plan was to organize what was to be known as the "100,000 Club." The club took its name from the fact that the desire of the company was to increase its customer-owners from 72,000 to 100,000 in the period of eighteen months.

The plan as worked out under Mr. Frost's direction provided that every employee would be given the opportunity to express his desire to assist the company in its activities and at the same time to better himself financially by selling small blocks of preferred stock of the company to his friends and to customers of the company. A general invitation was sent to each employee of the company giving the details of the organization of the "100,000 Club," together with the aims of the executives. Those who desired to join the club signed an application blank, thus enrolling in the "100,000 Club" and taking a pledge to exert themselves in the drive for new customer-owners. The invitations were sent out by Mr. Frost and were actually a personal suggestion that the employee might assist the company and make a commission for himself if he enrolled in the drive for new stockholders among the company's consumers.

Employees Anxious to Participate

Interest in the "100,000 Club" was evident from the original announcement on May 15. The personnel of the company was anxious to participate in such a drive and a large percentage enlisted in the club immediately. At the present time there are approximately 500 employees of the Edison company actively supporting the right to belong to the "100,000 Club" through their efforts to sell only small blocks of stock.

Small commissions are paid to the employees, but it is evident that the primary force behind the drive for new customer-owners is the spirit of competition that has been aroused in the club. The members of the club have been divided into a number of different groups, several different methods of grouping having been employed to stimulate this competition. Individual effort also is increased by the publication each month of the names of those securing the greatest number of new customer-owners. These names, according to the number of points won, the grading being based only on new customers obtained, are published in the Bulletin of the "100,000 Club." The aim of each employee of course is to head the list of employee stock salesmen.

On May 15 there were 71,300 individual stockholders in the Edison company. On Sept. 1 there were 80,000, and the number is to be increased to 100,000 within the next year.

Organized on a highly competitive basis as they are, the members of this club have made some remarkable records. For example, the high man in two months sold 159 new stockholders, and two men working together sold 32 new subscribers in one day. In every case stock-selling is a side line and the members must keep up their regular work. To compensate for the extra time required beside the small commission paid, a bonus is provided for the 200 members who can maintain a monthly average of eight new stockholders and thereby qualify for Class A.

As a further incentive, each member securing 100 or more new stockholders during the campaign is given a gold button with the legend "100 Club". To date, four members have qualified for this additional honor while twenty-three have passed the 50 mark.

Record Convention Held by Rocky Mountain Division, N.E.L.A.

THE meeting of the Rocky Mountain Division, N.E.L.A., at Glenwood Springs, Colo., sets a new standard for sectional meetings of the organization. Among the important subjects considered were state regulation, the development of the Colorado River and public relations. Considerable attention also was paid to the work of the women in the industry.

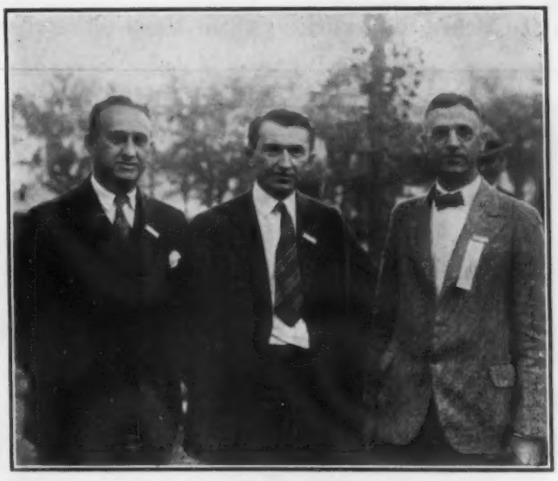
STATE regulation with the future possibility of initiating an amendment to the Colorado state constitution eliminating the present system of home rule of utilities in chartered cities; the development of the Colorado River, and public relations were the major themes of the sixth annual convention of the Rocky Mountain Division of the National Electric Light Association and the twenty-second annual convention of the Colorado Public Service Association at Glenwood Springs, Colo., Sept. 14-17, 1925. The meeting set a new standard for sectional N.E.L.A. conventions both in size and diversity of attendance and in excellence of program. The total registration was in excess of two hundred and sixty.

No less than eight speakers stressed the advantages of sound state regulation of utilities over regulation by cities, the method in force in Colorado at the present time. Included among them were utility commissioners from Kansas, Oregon and Colorado and leading members of the Colorado bar. The Colorado River was discussed by L. Ward Bannister, president of the Denver Chamber of Commerce and consultant to the Colorado River Commission, and by Congressmen from both Utah and Colorado. One entire session was devoted to a discussion of public relations.

First General Session

C. A. Semrad, vice-president and general commercial manager of the Public Service Company of Colorado and president of the Rocky Mountain Division, N.E.L.A., opened the first general session Monday, Sept. 14, with a short statement of the problems confronting the electrical industry in the Rocky Mountain states. State regulation of utilities in the case of Colorado, better public relations for all utilities in the division, and careful consideration of the question of taxation were the points he emphasized. I. E. Pratt, president of the Glenwood Springs Chamber of Commerce, welcomed the delegates to Glenwood Springs and extended to them the hospitality of the city. Charles R. Brock, prominent Denver attorney, responded to Mr. Pratt's address of welcome and made an appeal for sound public relations of utilities.

One of the features of the convention was the appearance on the program of Clarence J. Morley, Governor of Colorado, who wished the industry success in the solution of the problems confronting it. Other speakers were B. F. Stapleton, mayor of Denver, and Edward Taylor of Glenwood Springs, U. S. Congressman.



ARTHUR FRAGER, vice-president and general manager, Albuquerque Gas & Electric Company, the president-elect. C. A. SEMRAD, vice-president and general commercial manager, Public Service Company of Colorado, president until next July, and O. A. WELLER, Public Service Company of Colorado, secretary of Rocky Mountain Division, N.E.L.A.

Section Meetings

For the first time in the history of the conventions of this division meetings were held by the four seciton—public relations, commercial, technical and accounting. It is believed that a precedent has been established in this move which will be followed at all future conventions.

Many interesting subjects were discussed at the meeting of the public relations section. "This Obscure Factor—Public Relations" was the subject of an address by George A. Davis, manager of public relations, Oklahoma City Gas & Electric Company, Oklahoma City, Okla. Mr. Davis emphasized the point that public relations is a function of every employee of a public utility from the youngest office boy to the highest executive. He urged the industry not to attempt to commercialize its good public relations. He warned against any feeling of self-satisfaction where good public relations have been developed in a community and urged every utility to be always on the alert to improve this factor in its business. He described in detail a plan which has been worked out in his company where every

consumer who enters any office is escorted to the place where his or her business is to be conducted. Properly trained girls have been stationed at desks at each office door for this purpose. Such good public relations have been developed by this move that these young women are called upon to do anything from taking care of parcels to watching children while mothers are shopping.

V. L. Board, general superintendent, Public Service Company of Colorado, and chairman of the Industrial Relations Committee, spoke on the subject, "Developing a Sense of Partnership Between Employer and Employee," in which he discussed the work of the Industrial Relations Committee of the N.E.L.A. in its studies of pension systems, group insurance and like subjects.

"Let the Women Do It" was the subject of a paper by Miss Inez Thompson, Public Service Company of Colorado, Denver, and Chairman of the Women's Committee. Miss Thompson told of the organization of the committee which she heads and described its work. She urged that women be employed exclusively in the complaint departments of power companies.

The place of the trade journal in the industry was discussed by George C. Tenney, managing editor, Journal of Electricity, San Francisco. He pointed out that only by reading and supporting its trade journals can the industry profit by the service they are rendering. He described the work of the McGraw-Hill Company in aiding the industry in its publicity through the circulation of a national news service to all important papers covering subjects of popular interest reported in its publications.

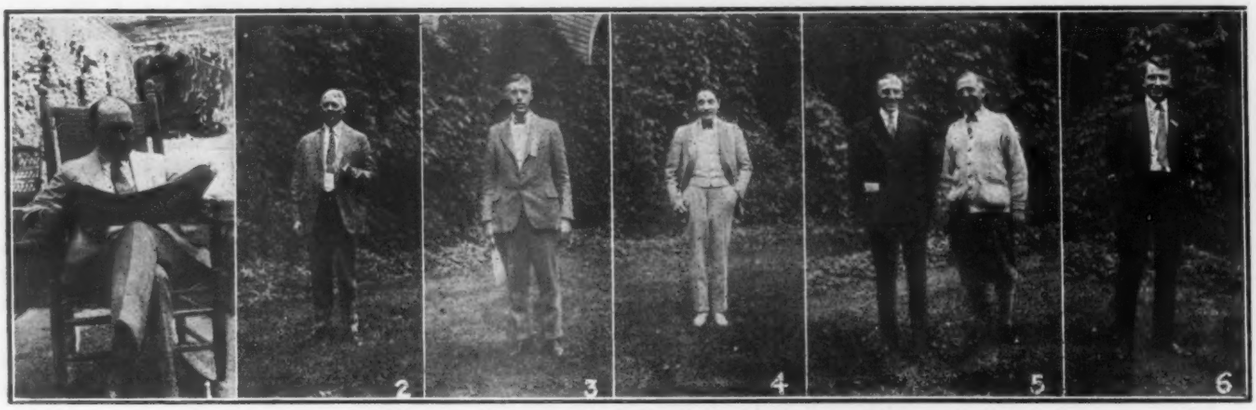
John F. Greenawalt, publicity manager, Mountain States Telephone & Telegraph Company, Denver, in an address entitled "How Shall They Know If We Do Not Tell Them?", described the work of the Rocky Mountain Committee on Public Information in conducting a series of classes in public speaking in which younger men in the utilities were taught the rudiments of public speaking. He urged the utilities to take advantage of every opportunity to tell their story before public gatherings of any character. "The Value of Co-ordinated Effort in Publicity, Advertising and Public Relations Policies" was the subject of an address by George E. Lewis, executive manager, Rocky Mountain Committee on Public Utility Information, Denver. Mr. Lewis in describing the work of his committee stated that through the concerted efforts of the utilities to give the public correct information regarding their operations the public has been saved millions in the avoidance of litigation and controversy which might have been caused by ignorance of the utilities' problems.

The high lights of the program of this section were summed up by W. C. Sterne, president and general manager of the Municipal Properties Investment Company, Denver, and chairman of the section. Mr. Sterne urged that the industry feel that the public relations problem is not one of good relationship between the utility, its employees and the public but is a problem in human relations.

Commercial Section Meeting

Load-building and appliance advertising were the chief subjects of discussion at the commercial section meeting which was presided over by J. A. Clay, general manager of the Western Colorado Power Company, Durango, Colo., and chairman of the section. F. F. McCammon, manager, power sales department, Public Service Company of Colorado, Denver, and past chairman of the section, discussed the work of the various committees during the past year.

"New Opportunities Through Commercial Electric Heating" was the subject of an address by P. M. Parry, general commercial manager, Utah Power & Light Company, Salt Lake City. Mr. Parry described the electric installation in Shay's Cafeteria, Salt Lake City, an article on which is published elsewhere in this issue, and told of the method used in selling this restaurant complete electric cooking service. He also described the development of the bake-



Notables at the Rocky Mountain Division, N.E.L.A. convention, caught in unconventional attitudes between sessions of the busy conference. 1. E. A. PHINNEY, general convention chairman. 2. J. J. COOPER, vice-president and general manager, Mountain Electric Company, Denver, chairman of entertainment committee. 3. O. A. WELLER, Public Service Company of Colorado, secretary Rocky Mountain Division, N.E.L.A. 4. W. C. STERNE, president Municipal Properties Investment Company, Denver, third vice-president Rocky Mountain Division, N.E.L.A. 5. Left—W. KISSICK, president New Mexico Electrical Association, and right—W. P. SOUTHARD, manager Trinidad Electric Transportation, Railway & Gas Company, and president Colorado Public Service Association. 6. C. A. SEMRAD, vice-president and

oven load in Salt Lake City and discussed its advantages from a power load standpoint. He stated that a 150-kw. electric bake oven is now in progress of installation in one of the bakeries in his city. B. F. Rowley, district sales manager, Edison Electric Appliance Company, Salt Lake City, in discussing Mr. Parry's paper, told of the development of the electric range load in the territory of the Utah Power & Light Company.

The manner in which ranges and other electric appliances have been sold in the mining camps of Colorado was described in a paper entitled "Experiences in Developing Heating Load," by W. E. Fleetwood, district manager, Western Colorado Power Company, Telluride, Colo. Many of the mining camps in this section of the state have been electrified almost completely insofar as electric cooking is concerned, Mr. Fleetwood stated.

C. N. Stannard, vice-president and general manager, Public Service Company of Colorado, Denver, in an address emphasized the point that aggressive commercial policies can be made to promote good will for the utilities and at the same time develop new business.

The part played by advertising in merchandising appliances was described by E. K. Hartzell, assistant director of publicity, Public Service Company of Colorado, Boulder, in a paper, "Reaching the Prospect Through Advertising Copy." Mr. Hartzell discussed the merits of various kinds of advertising including newspapers, billboards, and direct-mail copy, and at the same time emphasized the difference in appeal which should be made in each class. He pointed out that unless merchandising copy was prepared by someone familiar with the subject advertising dollars were liable to be wasted.

The value of lighting load as compared to power load was discussed by Jerry Munroe, special representative of the Bryan Marsh Company, Cleveland, Ohio. Mr. Munroe described the national campaign which has been worked out by the industrial lighting committee of the N.E.L.A. and urged the power companies in the Rocky Mountain states to tie in their sales programs with it.

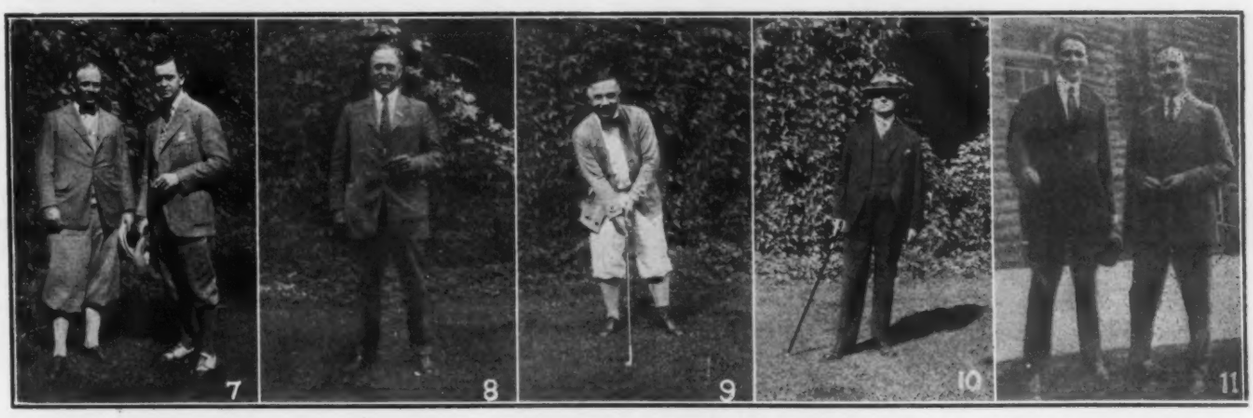
Mr. Clay, chairman of the section, in summarizing the program pointed out that the commercial problems of the utilities in this section of the country differed from those of other utilities because many of the companies are small and many of the industries different. He urged the Commercial Section committees to organize with a view of preparing reports which would summarize each company's commercial problems for the benefit of other companies in the division. He announced that a general meeting of the Commercial Section of the Rocky Mountain Division will be held at Lake Electra, Colo., early next spring.

Technical Section Meeting

R. B. Hubbard, superintendent Western Division, Public Service Company of Colorado, Boulder, and chairman of the Inductive Co-ordination Committee, addressed the Technical Section on "Radio Interference and the Attitude of the Central Station Company." Mr. Hubbard classified various complaints of radio owners and pointed out that only a very small percentage of the troubles ascribed to the power companies were directly traceable to them. He described the various devices used for the detection of radio interference and told of some of the corrective measures which might be employed.

"Current Developments in Power Plant Equipment" was the subject of a paper by A. L. Jones, engineer, General Electric Company, Denver, in which some of the present generating and transmission problems of the industry were described. Mr. Jones told of the development of steam boilers to operate at 1,500 lb. per sq. in. in some of the large eastern stations and pointed out some of the problems the manufacturers were studying at the present time.

The value of accurate cost records for all phases of power plant operation was emphasized by R. F. Throne, mechanical engineer, Public Service Company of Colorado, Denver, and chairman of the Prime



general commercial manager, Public Service Company of Colorado, and president of the Rocky Mountain Division, N.E.L.A. 7. Left—G. O. HODGSON, General Electric Company, Denver, chairman of the golf committee, and right—J. E. LOISEAU, secretary Public Service Company of Colorado, and chairman of the Accounting Section. 8. J. N. CLAY, general superintendent Western Colorado Power Company, chairman of the Commercial Section. 9. A. C. CORNELL, manager Western Electric Company, Denver, treasurer of Rocky Mountain Division, N.E.L.A. 10. CHARLES L. BROCK, Denver attorney, one of the speakers on the program. 11. Left—PAUL LEE, attorney from Ft. Collins, Colo., and right —M. H. AYLESWORTH, managing director, N.E.L.A.

Movers Committee. Mr. Throne urged that careful periodic inspections be made of all plant equipment, irrespective of its performance, for the purpose of eliminating breakdowns which might result in service interruptions.

William Trudgian, central station representative, Westinghouse Electric & Manufacturing Company, Denver, described some of the recent developments in station and transmission equipment perfected by his company.

In discussing some of the overhead distribution problems in the Rocky Mountain region, M. M. Koch, superintendent of distribution, Public Service Company of Colorado, Denver, described the present railroad crossing contracts required of utilities in Colorado and urged that steps be taken to modify some of the requirements.

"More and Better Wiring" was the subject of a paper by S. W. Bishop, executive manager, Electrical Cooperative League, Denver, and chairman of the Wiring Committee. Mr. Bishop urged that the standard electrical ordinance as worked out by the Associated Manufacturers of Electrical Supplies be enacted in as many communities as possible. He stated that more and better wiring will lead to the use of more energy and its better application whether in lighting, heating or for power purposes. The meeting of the Technical Section was presided over by H. H. Kerr, superintendent electric department, Public Service Company of Colorado, Denver, chairman of the section.

Accounting Section Meeting

Public relations begin at the contract counter, in the opinion of C. E. Elliott, manager contract department, Public Service Company of Colorado, the first speaker on the Accounting Section program. Mr. Elliott described the qualifications of a contract clerk and told of specific instances where public relations have been improved by acts performed at the contract counter.

Machine billing was discussed by A. E. Obendorfer, specialist in machine billing, Henry L. Doherty & Company, New York. Henry Swift Ives, vice-president and secretary, Casualty Information Clearing House, Chicago, spoke on "Insurance, a Modern Business Necessity." J. E. Loiseau, secretary, Public Service Company of Colorado, Denver, chairman of the section, outlined the program of the section for the coming year.

Second General Session

W. P. Southard, general manager, Trinidad Electric Transmission Railway & Gas Company, Trinidad, Colo., and president of the Colorado Public Service Association, presided at the second general session Tuesday, Sept. 15. "Our Larger Idea of Service" was the subject of a paper presented by D. C. McClure, general superintendent, St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo. Mr. McClure stated that the problem of the power companies was the development of a service conscience in the minds of every employee. He believed that the job of the utilities is the technical performance and selling of a service to the public, a job in which the attitude of the employee plays an important part.

M. H. Aylesworth, managing director, National Electric Light Association, New York, reviewed some of the problems facing the electrical industry today. He voiced the imperative need for telling the real story of "Electrical America" to counteract the mass of misinformation that has been broadcast by futurists, theorists and self-seeking politicians.

J. C. Greenleaf, member of the Kansas Utility Commission, Topeka, Kan., was one of the feature speakers of this meeting. He described the work of the public utility commission in his state and pointed out some of the problems which have been met and solved. During the course of his address he warned the companies to use care not to impair the credit of the industry by undertaking developments and extensions not economically feasible. He urged the industry not to allow professional financial manipulators to undermine the splendid position the securities of the electric utilities enjoy with the public today.

"State versus Municipal Regulation" was the subject of an address by Charles R. Brook, Denver attorney, in which comparision was made between the present system of home rule of utilities in effect in Colorado today and state regulation as enjoyed by utilities in other states. He pointed out that the only way the present scheme of regulation in Colorado can be changed is through an amendment to the state constitution. He urged the utilities to tell the public of the advantages to be enjoyed under sound state regulation.

Edwin A. Bemis, field manager of the Colorado Editorial Association, Littleton, Colo., described the change that has come about between the newspapers and the utilities during recent years. He stated that the newspapers stand ready to back the utilities in any stand that is just and fair to the public.

The convention banquet was held Tuesday evening. J. E. Moorehead, Mountain States Telephone & Telegraph Company, Denver, acted as toastmaster. More than 250 were in attendance.

Third General Session Features Colorado River

Development of the Colorado River and the interests of the upper basin states featured the third general session, Wednesday, Sept. 16. The principal speaker was L. Ward Bannister, president of the Denver Chamber of Commerce and authority on the subject. Mr. Bannister, it will be remembered, acted as consultant to the commission which drew up the Colorado River Compact. In his opinion the development of the Colorado River is the gravest economic situation in the history of the states comprising the upper basin. He suggested two solutions to the present deadlock, first, a satisfactory interstate agreement to be drawn up by a new commission of representatives of states concerned, or second, a definite decision by the United States Supreme Court regarding the economic division of the waters of the river between states or between basins. Provided the states cannot reach an agreement among themselves, this latter course must be adopted, he declared, because of the inability of either Congress

or the Federal Power Commission to settle this question.

E. O. Leatherwood, Congressman from Utah, supported the stand taken by Mr. Bannister and sounded a note of warning to the upper basin states against the propaganda of California and Arizona. He accused California of being selfish in its attempt to force the Swing-Johnson Bill through Congress. The subject was further discussed by Edward Taylor, Congressman from Colorado. Further discussion was presented by Dr. D. S. Hill, president of the University of New Mexico, Albuquerque, N. M.

Further attention was given to the subject of state regulation by two speakers on this program. Paul Lee, attorney of Ft. Collins, Colo., spoke on "The Status of Utility Regulation," and Hylen Corey, of the Oregon Public Service Commission, Salem, Ore., told of the development of public regulation in that state, which is credited with having one of the most effective utility laws in the country. Attention was drawn to the uniform public utility law which has been drawn up by the United States Bar Association.

Evening Program Broadcast Over KOA

A vital message, "Insuring American Ideals," by Henry Swift Ives, was presented at Wednesday evening's meeting and broadcast over KOA, the General Electric Company's Denver station, through the cooperation of the Mountain States Telephone & Telegraph Company.

The work of the Rocky Mountain Committee on the Relation of Electricity to Agriculture also was described at this meeting by Dr. Charles A. Lory, president of the State Agricultural College, Ft. Collins, Colo.

Third General Session

What the electric railways may look for in 1930 was the topic of an address by E. A. West, general manager of the Utah Light & Traction Company, Salt Lake City, at the third general session Thursday, Sept. 17. Mr. West predicted that the present problems confronting the street railways will have been solved at that time and that again they will be enjoying an era of prosperity.

The history of municipal and state ownership on the Pacific Coast was discussed by George C. Tenney in a paper entitled "The Pacific Coast Verdict by Ballot." Mr. Tenney described the California Water and Power Act and the Bone-Erickson Bill as presented in Washington at the last election and drew attention to some of the lessons the utilities have learned from these measures. Customer-ownership and an open and fair attitude on the part of the utilities in taking the public into their confidence are the two strongest factors at the disposal of the power companies in combating such movements he stated.

Miss Isabell Davie, chairman, Women's Committee, Middle West Division, N.E.L.A., Des Moines, Iowa, told of the advantages to be derived from properly educating women employees and urged utilities which have not done so to organize women's committees.

O. P. Anderson, commercial engineering department, Edison Lamp Works, Harrison, N. J., discussed the progress in illumination since the invention of the carbon filament lamp and described the lamp standardization program which has been adopted by Mazda lamp manufacturers.

The women attending the convention held one session in which the work of the Women's Committee was the chief topic of discussion. Miss Inez Thompson of the Public Service Company of Colorado presided and the speakers were Mrs. Arthur Prager of Albuquerque, N. M., Miss Isabell Davie of Des Moints and Miss Thompson.

Election of Officers

At the business meeting of the Rocky Mountain Division, N.E.L.A., Arthur Prager, general manager, Albuquerque Gas & Electric Company, Albuquerque, N. M., was elected president to succeed C. A. Semrad, whose term expires July 1, 1926. Other officers elected were: First vice-president—Clare N. Stannard, vice-president and general manager, Public Service Company of Colorado; second vice-president—E. P. Bacon, general manager, Midwest Public Service Company, Casper, Wyo.; third vice-president—W. C. Sterne, president and general manager, The Municipal Properties Investment Company, Denver; secretary—O. A. Weller, budget director, Public Service Company of Colorado; treasurer—A. C. Cornell, manager, Western Electric Company, Denver.

Members at large are K. W. Kissick, manager, Deming Ice & Electric Company, Deming, N. M.; F. F. McCammon, Public Service Company of Colorado, and J. J. Withrow, president and general manager, Sheridan County Electric Company, Sheridan, Wyo.

E. F. Stone, superintendent, Southern Colorado Power Company, Pueblo, was elected president of the Colorado Public Service Association to succeed W. P. Southard. Other officers of this organization are: First vice-president—J. F. Greenawalt, publicity manager, Mountain States Telephone & Telegraph Company; second vice-president—Howard S. Robertson, general manager, Denver Tramway Corporation; secretary-treasurer—O. A. Weller, Public Service Company of Colorado.

The New Mexico Electrical Association, which met jointly with the other two organizations, will hold its annual meeting and election of officers at Albuquerque in February, 1926.

Entertainment

Elaborate entertainment provisions were made both for the men and the women attending the convention. The program was so arranged that meetings were held only in the mornings, leaving the afternoons free for recreation. One of the features of the convention was the golf tournament, which extended over a three-day period. The women of the convention were presented with favors consisting of silver candlesticks. Many of the women commented upon the electric traveling irons presented as mementos of the convention by B. F. Rowley, district manager of the Edison Electric Appliance Company, Salt Lake City.

CENTRAL STATION CONSTRUCTION OPERATION AND MAINTENANCE

Standardized Meter Houses for Outdoor Service

Power Supplied for Mining Purposes from Outdoor Substations Accurately Metered by Well Housed Equipment

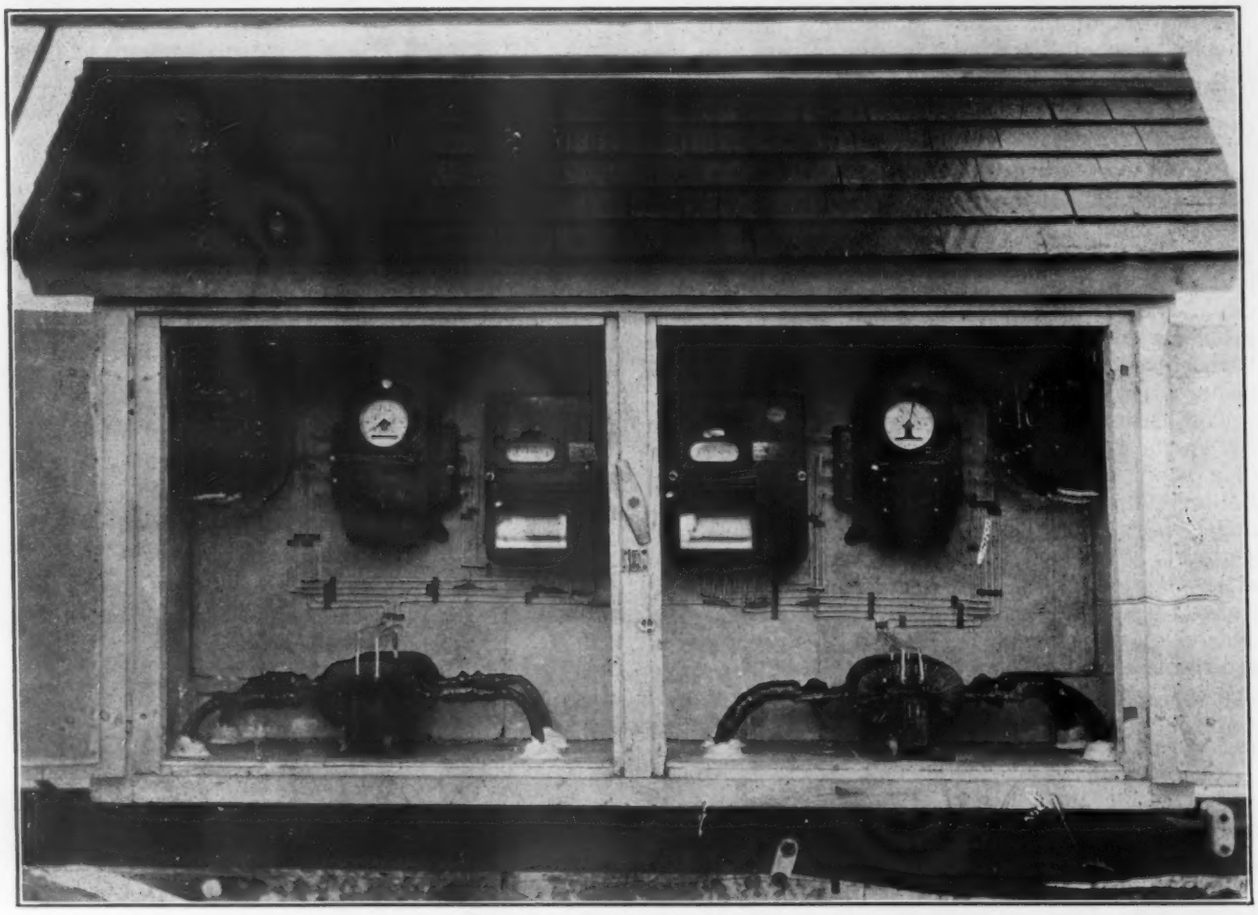
By E. C. FERREE, Electrical Superintendent, The Trinidad Electric Transmission, Railway & Gas Company, Trinidad, Colo.

Outdoor mine power substations present metering problems which have been met successfully by The Trinidad Electric Transmission, Railway & Gas Company, as shown in the accompanying illustration. The installation shown is a secondary metering outfit which has been standardized by the company for this class of service. In this particular instance the installation happens to cover two complete metering sets, there being installed at the same location two banks of three single-phase transformers each supplying 440-volt, 3-phase, 60-cycle service.

It will be noted that the entire metering equipment is enclosed in the little house. This house is lined completely with ¼-in. asbestos board, is made weatherproof and as nearly dustproof as is possible to make it. Dimensions are no larger than necessary to house conveniently the metering equipment. The main leads to the current transformers are brought through porcelain bushings. The space between the leads and the bushings in each case is filled with a thin layer of plaster of paris to keep out dust, moisture and small insect and animal life. At the same time this plaster plug may be broken out easily should it be necessary to rearrange the leads in any way. Current transformers are mounted on the floor of the house, as may be seen, and the potential transformers are mounted on the wall at either end of the house. This makes efficient use of the space available and aids in segregating the different leads.

Two meters are used in connection with each installation in the particular case shown. One meter is a check against the other although both meters in each circuit are connected to the same set of current and potential transformers. It will be noted that one of the meters is a Westinghouse type RA integrating-watthour, graphic-demand meter while the other is a Westinghouse type RO integrating-watthour, indicating-demand meter. Both meters operate on a 10-min. time interval.

By close inspection of the illustration it may be noted that there are three lights directly above the indicating demand meter. These lights, called phase lights, are connected to the potential transformers and used in testing power conditions. They are normally left partly unscrewed in the socket.



Asbestos-lined meter house used for outdoor locations in mining region

Problems of Modern Power System Operation

Accurate Forecasting of Loads Necessary to Enable Economic Use of Stored Water and Steam

By F. B. LEWIS, Assistant General Manager, Southern California Edison Company, Los Angeles

A certain amount of steam generating capacity is provided generally on large power systems, though they may be primarily hydroelectric. The exact percentage of steam to total capacity is dependent upon many conditions peculiar to the system in question, but it ranges in the opinion of many engineers from 20 to 35 per cent.

Steam generation is the most economical way in which to provide standby service against the failure of other generating units or plants. Likewise it is the most economical way to provide for growth of load.

The manner in which steam plants are operated in conjunction with the predominating hydro plants is a matter of some interest to operating engineers. The maximum over-all economy in the operation of the entire generating system naturally is accompanied by the utmost use of all of the available water power, and therefore the minimum use of the steam plants. This results in a rather poor annual load factor on the latter.

Fig. 1 illustrates the estimated monthly output in kw-hr. of the generating resources of the Southern California Edison Company during the current year. This shows the variations during the year and the power available from the stream-flow plants, the output of which naturally reaches a maximum during the run-off period of May, June and July and a minimum during the months of November, December and January.

Storage water available is made use of in order to produce the best over-all economy for the entire system and likewise to permit the best possible daily load factor on the steam plants because the economy of the latter varies directly with the load factor placed upon them.

This chart illustrates the estimated output of the company's steam plants during the current year. It will be noticed that there is considerable variation in such output, the maximum occurring in the month of January and the minimum in the run-off season during the months of April, May, June and July.

During this run-off season there is sufficient capacity in the stream-flow plants to carry the entire system load, and the steam plants are operated only from 7 a.m. to 10 p.m. to carry the peak loads and to furnish voltage regulation. The plants using the stream-flow energy are put on block loads, and the system regulation is done with the steam plants carrying the minimum amount of load. From 10 p.m. to 7 a.m. the load is low and all steam units are out of service, the regulating being done with one of the larger hydro plants.

There usually is a period of about one of two months just before and just after the maximum run-off period when it is necessary to run the steam plants on varying block loads or possibly to take them off entirely at night and regulate by one of the storage-water plants. This results in good steam-plant economy and requires the use of only a small amount of storage water. During the balance of the year the speed regulating is done with one of the storage-water plants, the operator controlling the governor which feeds the water wheel more or less water depending upon the load requirements.

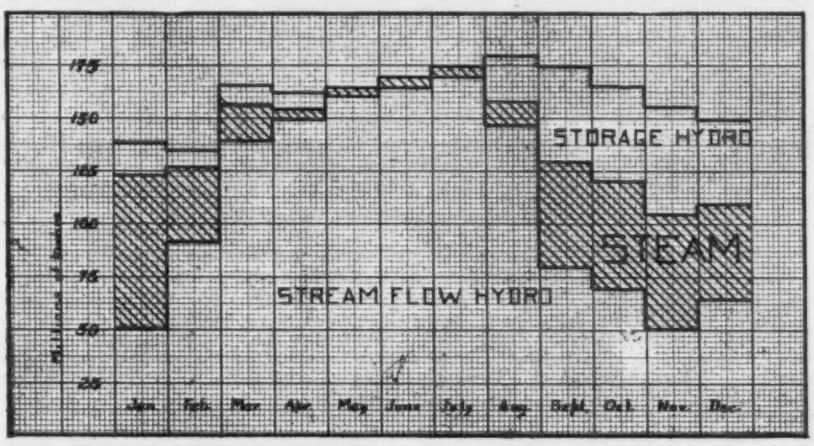


Fig. 1—Estimated monthly output in kw-hr. of the generating resources of the Southern California Edison Company for the current year

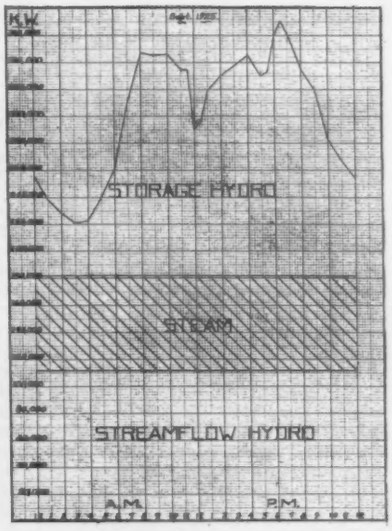


Fig. 2—Characteristic average daily load on the system of the Southern California Edison Company as predicted for the month of Sept., 1925

Fig. 2 illustrates the characteristic day load as predicted for the month of September, 1925. It illustrates also the power available from stream-flow plants and the way in which steam plants are operated. At the maximum possible load factor such plants are given a block load equivalent to the most economical load for the units which must be employed and the variations are taken by the storage-water plants. This method provides better over-all economy than that of giving block loads to the storage-water plants and regulating with the steam plants.

It is necessary to obtain all possible data on load requirements and on the water power available in order to predetermine the amount of storage water which it is safe to use each month and thus schedule the amount of steam power to be operated.

Melting Pot Cross-Sectioned in Employment Office

Characteristic Traits of Human Nature Make Routine Duties of Employment Interviewer More Interesting

By R. G. KENYON, Assistant Supervisor of Employment, Southern California Edison Company

Every employment office which makes any pretense of having the right man ready for the right job at the right time has some system of classifying applicants according to vocation or experience. There is a much more interesting classification possible, however, and that classification is based purely upon the human equation.

There are certain erroneous thoughts prevalent in the minds of men seeking work. Some of these thoughts are held in common by the great majority; others are entertained by a chosen few. The effects which these erroneous thoughts have upon different types of applicants is a great help in making the hours pass quickly for the interviewer.

There is, for example, the classic myth that "with a payroll as large as your company's there must be at least one job open somewhere." The degree to which this belief has grown in the mind of any given applicant is in inverse ratio to his current cash assets.

Then there is the old-fashioned man who carries with him a well thumbed set of laudatory epistles from former employers. This type is disappearing but it dies hard. There is something so eminently satisfying about a letter that extolls good qualities aid fails to mention any others that it is very unlikely that this practice ever will be thrown wholly into the discard. Closely allied to this man is the applicant who comes armed with a letter from a friend of the

G.M. which states among other things that "anything you can do for the bearer will be greatly appreciated by the writer."

There is little need to add that this is a tremendous help to the interviewer in classifying and codifying the applicant for future use, particularly so with reference to such qualities as self-reliance, initiative, and aggressiveness.

There is also the youthful prodigy brought in by his fond parent. It is readily apparent that the f.p. brings the boy in primarily for display purposes as he does all the talking himself and does not give the boy an opportunity to say a word. If these boys really have performed one-half the feats claimed for them by these proud parents the electrical world is certainly due to harvest a fine crop of genius in this next generation. "All this boy wants is a starting place and he'll soon show what he has in him," is one of the favorite parting shots of this brand of caller.

Occasionally a man and his wife call together, the man seeking employment. Some wives step right up into the front line trenches and help him seek while others remain with the reserves in the outer office and justify their presence, to their own satisfaction at least, by lending their moral support to the husband on the firing line.

All of the above have been applicants who have enlisted some support in their campaign to get work. A second and far larger group is made up of those applicants who enter the employment office "unhonored and unsung" with just one idea in mind—to get work. This group grades all the way from the high-powered experienced central station man down to the high school senior who hopes to graduate in June when positions are few. The old-timers are rather difficult to handle as it is next to impossible to convince them of the undesirability of placing a man in a position too far below his actual grade and ability. The great majority of the younger men who more recently have left school or college are an easier problem to handle. Many of them have some objective in mind, and those who have no definite goal are usually willing to be shown.

The applicant who "can do anything" is always an interesting number on the day's program. It is relatively an easy matter to bring him down to earth as a few simple questions serve to establish the facts in the case. Either he has "never done much in the electrical line but has always wanted to get into it," or "he has done quite a bit of electrical work such as house-wiring and building radio sets." In any event he is usually quite ready to modify his original "can do anything" to "will try anything."

The European engineer just new in this country presents a case calculated to arouse sympathy. He may have a technical training which would make him a very useful man to an organization, but his inadequate knowledge of English makes it very difficult to use him. The average American-born engineer is far from being the best salesman in the world when it comes to selling his own services, but he at least can speak the language.

Then there is the real salesman who has always sold things, not the least important of which has been himself. This man steps in snappily, makes it absolutely obligatory for the interviewer to shake his hand, puts on the "How good am I" record, and proceeds to spread himself.

This list could be almost prolonged indefinitely, each class of applicants having its own outstanding peculiarities, but the types delineated are representative of a day's grist in a busy office.

When general business conditions are on the rise and labor turnover is fairly high, the interviewer takes on some of the attributes of Santa Claus and is in a fair way to become the most popular man in the organization. When business conditions are quiet and such a thing as "turnover" hard to find, just the reverse is true. Applicants are very apt to be obsessed with the idea that there are positions open, but that for some unknown reason the interviewer does not wish to fill them. Ambassadorial finesse is crudity itself compared to the diplomacy which must be used by the employment man to send this type away jobless but satisfied.

The employment interviewer is in a splendid position to get an accurate cross-section picture of human nature as it is, and from his point of vantage he is frequently able to render great service to many applicants irrespective of whether or not he is able to place them with his organization.

There is a justifiable feeling of satisfaction that comes from knowing that possibly the discussion of the personal attributes of some applicant with that applicant has resulted in his obtaining a better measure of his true abilities.

The opportunity to view close up and at first hand those representative of practically every class, quality and nationality of human being prevents the work of the employment interviewer from becoming humdrum routine.

Emergency Steam-Electric Plant Mounted on Tug

Deck Used as Generator Floor and Mast as Transmission Tower Tug Serves as Emergency Central Station

By M. T. Crawford, Superintendent of Distribution, Central District, Puget Sound, Power & Light Company, Seattle, Wash.

During a storm on Puget Sound Dec. 16, 1924, the three-mile 6,600-volt cable from Seattle to Vashon Island broke down. An attempt to repair it in place was unsuccessful, owing to the rough weather and to the extent of the damage. The cable therefore was reeled up and brought to Seattle for repairs. This cable is composed of three No. 6 stranded-copper conductors rubber insulated and encased in armor. Fourteen breaks were found and repaired by cutting out the damaged portions and splicing the conductors in each case. On re-laying the cable, however, it was found that prior repairs had weakened it mechanically to the extent that it would not withstand the tension to which it was subjected in the process of laying and on being put into service burned open in unexpected places. It was necessary to reel the cable up, repair it and relay it three different times before it was made to hold. In the meantime a new cable was ordered to duplicate the old one.

When it was found that the old cable could not be repaired in place, the country was scoured for some form of generating equipment that could be set up quickly to furnish temporary service to the island inhabitants. After extensive search a 200-hp. McEwan engine direct-connected to a 150-kva., 440-volt, 3-phase Ridgway generator was procured and was mounted on the tug Roosevelt which was lying idle in the Seattle harbor. A steam connection then was made from the tug's boilers to the engine. It is interesting to note

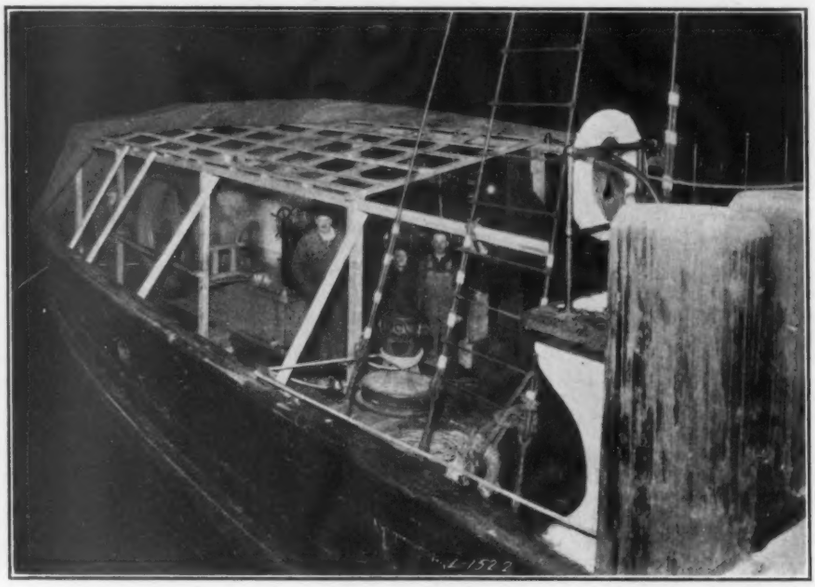


Fig. 1—Tug Roosevelt equipped with generator and serving Vashon Island, Puget Sound, while repairs are being made to the submarine cable which normally supplies this service from the system of the Puget Sound Power & Light Company. The mast serves as the transmission tower.

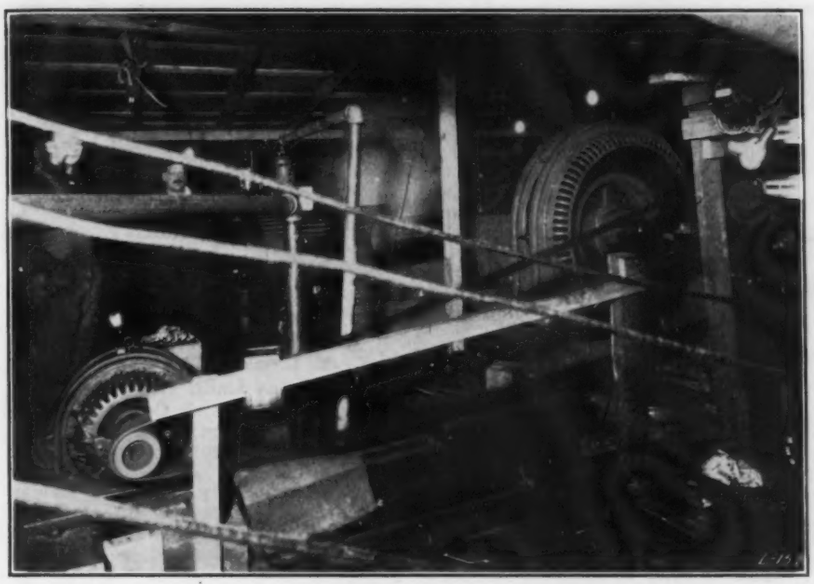


Fig. 2—Emergency service supplied by 200-hp. McEwan steam engine direct-connected to 150-kva., 440-volt, 3-phase Ridgway generator. Steam is supplied from the boilers of the Roosevelt.

that the Roosevelt was the flagship of Admiral Peary on that explorer's first successful trip to the North Pole fourteen years ago, and was built with a hull 3 ft. thick to enable it to withstand ice jams.

The tug was moored to a dock on the island, and connection was made with the island distributing system through a bank of three 75-kva., 440/2,300-volt transformers mounted on the deck of the tug. The primary risers were carried from here up the mast of the tug and jumped by a short span to a pole on shore to which a short 2,300-volt tap line had been run from the nearest point in the distributing system.

The Vashon Island electric property serves a population of some 4,000 or 5,000 persons. It was acquired by the Puget Sound Power & Light Company from the West Coast Utilities Company last year. The business is principally in domestic lighting of rural homes and of country homes of Seattle business people, though there is a considerable amount of small power used in greenhouses, chicken houses and for such domestic purposes as cooking and pumping. The temporary plant was found adequate at all times except for a short period of the day when the lighting peak overlapped the working day of the only large power user, a gravel pit. At this time it was necessary to drop this customer's load temporarily. It readily will be understood that the cost of running the temporary power plant greatly exceeded the gross revenues received from the island business. In fact the costs were four times the revenues. However, this case was one in which service to consumers is to be considered above operating costs. In equipping the tug and making the plant ready for service, three shifts were worked with the expectation of restoring service by Christmas. Service was actually restored Dec. 23, just seven days after the original cable-fault occurred.

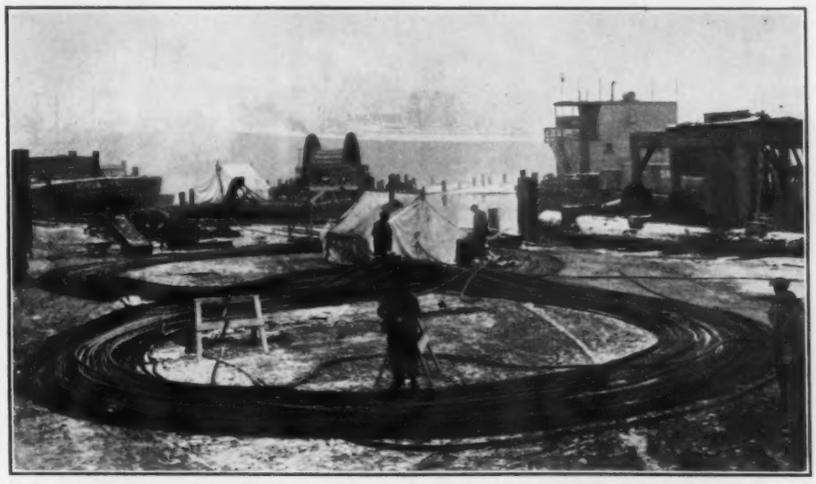


Fig. 3—Three miles of 6,600-volt, 3-conductor cable laid out on the dock of the Drummond Lighterage Company, West Seattle, Wash., for repairs. The cable is an old one, and much trouble was experienced in getting it re-laid for service. Note the tent to house the splicers

Long-Range Load Indicator for Steam Power Plants

A 250-ft. range of visibility is possible with the new power indicator recently brought out by the Westinghouse Electric & Manufacturing Company. This indicator is designed primarily for use in boiler rooms for indicating the total load of a power station. Many different types of load indicators for this service have been developed by engineers in various parts of the country, but few have been genuinely satisfactory.

This new indicator is of the relay type. The pointer is driven by a small motor which is energized through the contact of the measuring element. The case of the device is constructed of sheet steel and angle iron designed to be rigid and dust-tight. All windows are of heavy plate supported in a cushion mounting to prevent damage from vigration. Dials are black with white figures, and this makes it very easy to illuminate the dial satisfactorily by means of lamps concealed within the case. Doors in the case itself permit easy access for replacement of lamps and for the lubrication of the moving parts when such is required. The case is about 72 in. square on the face sides and 30 in. in depth. Either single or double face may be provided.

This indicator may be furnished with a polyphase wattmeter element to operate from the totalizing current transformers, or may be supplied with a direct-current ammeter element to operate from a remote metering apparatus,

State Court Upholds Spokane Judge on Power Ruling

The Washington state supreme court on Sept. 3 handed down a decision affirming judgment of Judge Blake of the Spokane County superior court in dismissing an action brought against The Washington Water Power Company of Spokane and the Modern Electric Water Company of Opportunity, Wash., and others by the Opportunity Christian Church and others seeking to compel the power company to furnish the church with electric energy for power purposes.

In affirming judgment of the Spokane County court the supreme court held that the lower court was right in ruling that the Opportunity Christian Church, as minority stockholders in the Modern Electric Water Company was not in a position to bring a suit against The Washington Water Power Company to compel the company to furnish it with power, when majority stockholders of the Modern Electric Water Company had voted against bringing the suit.

The supreme court also upheld the trial court in its ruling that the action could be maintained only by the Modern Electric Water Company and not by the minority stockholders, for which reason the lower court dismissed the suit.

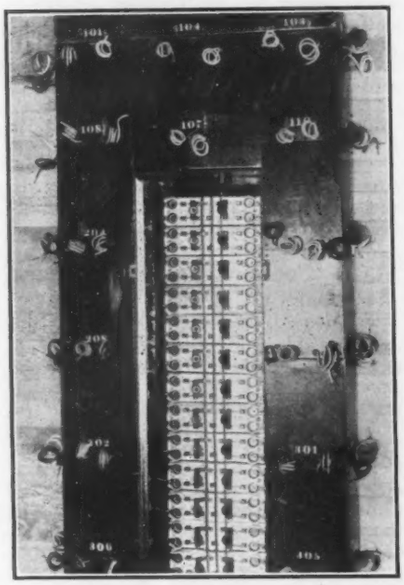
Inception of the action grew out of the fact that certain residents of Opportunity sought to compel The Washington Water Power Company to furnish them with electricity for power purposes, while The Washington Water Power Company's contract with them called simply for furnishing residents of the district with electric energy to operate their wells and to furnish electricity for the usual domestic purposes.

IDEAS FOR THE CONTRACTOR

Multi-meter Cabinet Saves Space in Installations

Contractors Use Cabinet to Provide Adequate Room for Switches and Meters in Apartment Houses

Sufficient space frequently is not allowed in apartment house buildings to provide adequately for the installation of switches and meters for each apartment. Space in such buildings is valuable, and owners and builders do not like to allow any more for equipment than is absolutely necessary. A multi-meter cabinet is being manufactured by



Installation of multi-meter cabinet by Hill Electric Company in Cooper Apartments, Los Angeles, showing switches and board before mounting meters. This cabinet will have thirty meters mounted upon it

the Peccop Manufacturing Company, 4575 Santa Monica Boulevard, Los Angeles, which is meeting this condition successfully. The accompanying pictures show views of two different installations of this cabinet. It will be seen that it is much more compact than the average installation where an externally operated switch is used with a metal gutter. It not only makes a good electrical installation occupying less space but also makes a cheaper installation from the standpoint of the electrical contractor.

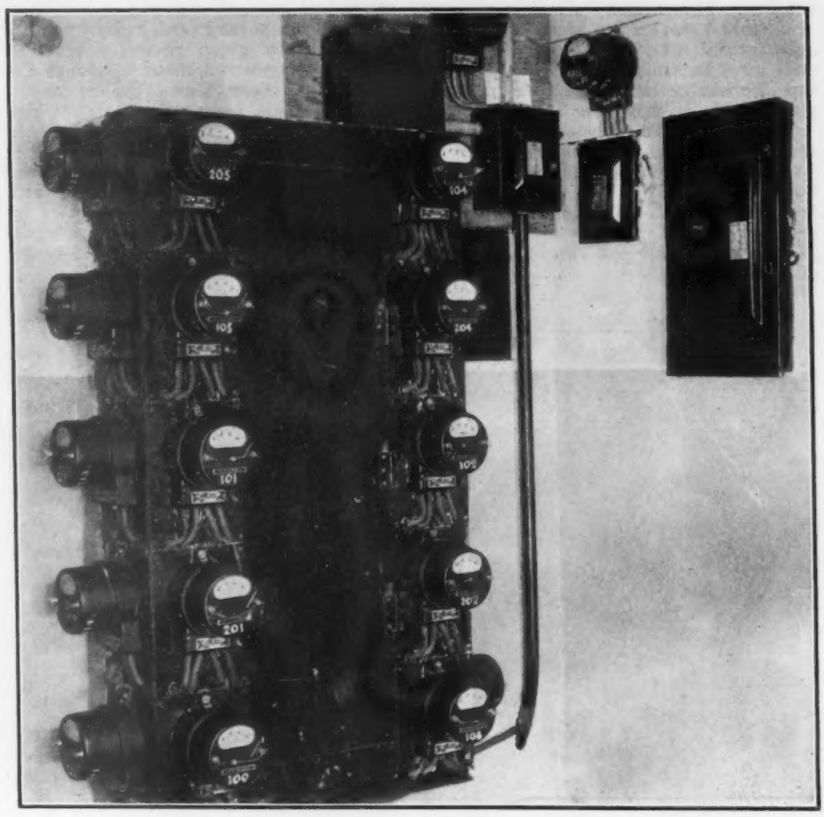
The cabinet is made of 14-gage iron mounted on a heavy angle-iron frame. Switches for each meter are mounted in a central compartment. Openings for the meter leads are brass bushed to prevent abrasion. The cabinets ordinarily are mounted against the wall. A board 30 in. wide, 76 in. high and 8 in. deep mounted in this manner is large enough to accommodate 30 meters. In larger installations it is possible to mount two of the cabinets back to back and install them away from the wall. By this method a board 30 in. wide, 55 in. high and 16 in. deep would be of sufficient size for a 50-meter job. Eleven inches is allowed to a tier of meters.

Stipulated Price Established on Ornamental Street Lights.—Falling in line with the recent request of the city council of Los Angeles that all manufacturers of ornamental street lights cooperate with the city engineer in creating competition and securing a reduciton in costs of installing lights, the Marbelite Corporation of America, whose main office is in Los Angeles, has offered to furnish its products to that city or to private contractors at a stipulated price for one year. This fixed price schedule on patented Marbelite products will confine competitive bids to the actual costs of installing the lights, it is pointed out, and make it possible to make accurate estimates of costs before calling for bids.

Modern Irrigation System of the Salinas Land Company

The Salinas Land Company, King City, Calif., has one of the most modern electrical irrigation systems to be found in the state. At the present time it has approximately 5,000 acres planted with beans and peas, all of which are under cultivation. It has twelve pumps connected to wells and one booster pump.

The pumps range in size from 8 in. for the booster pump and from 12 in. to 16 in. for the regular pumps. All of these are of the deep-well turbine type. They are operated with motors from 40 hp. for the booster pump and from 75 hp. to 125 hp. on the others. The company has a variety of makes of pumps and motors, including Byron Jackson, Layne & Bowler, and Fairbanks-Morse pumps; and Westinghouse, General Electric, Allis Chalmers and Fairbanks-Morse motors. Three-phase current is supplied at 440 volts. The accompanying table shows an itemized



Multi-meter cabinet installed in Sahara Apartments, Los Angeles, by A. S. Tyler. This cabinet is large enough for 20 meters, although only 16 actually are mounted upon it. Note the great saving in space

list of the various pumps and motors installed.

Tests recently were made of all of the plants on the ranch to determine their efficiency. These tests recently were conducted by the University of California under the supervision of C. N. Johnston, assistant in irrigation investigations and practice, and E. J. Stirniman. Many interesting results were obtained, among them the variations found in line voltage.

One of the most interesting developments recently made on the ranch was the grouping together of four pumping plants so that all the power will be charged on one master meter. There are four 125-hp. motors and one 100-hp. motor in this group. An air chamber is provided in the distributing water line to take the water hammer. Pressure is maintained in this by means of a 440-volt, 3-phase, 1-hp. U. S. motor operating a Curtiss air compressor; this is located in the pump house. A Sentinel irrigation meter measures the water supplied by each pump. It is expected that the present grouping of the four motors under a master meter will effect a material economy in operating costs.

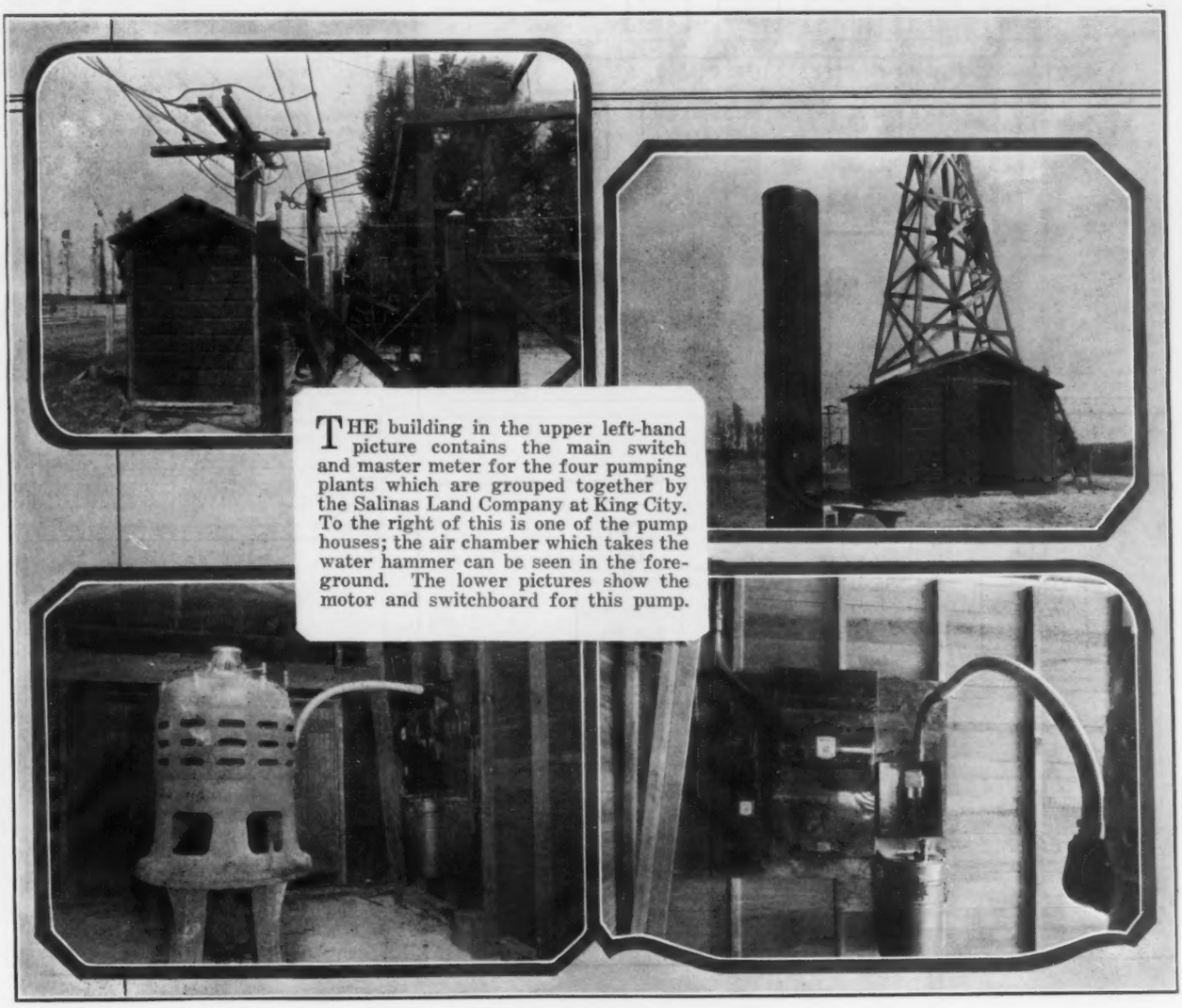
The electrical work was installed by George Slavich of the King City Electric Works, King City. The main switch has a capacity of 1,000 amp. at 500 volts, and is supplied with three 750 000 cir. mil cables in a 3½-in. conduit. The main switch, current coils and meter are installed in a small building erected for this purpose adjacent to the bank of transformers.

As two of the pumping plants are located on the opposite side of the highway from the meter house, an overhead cross-over line has been built to supply them with service. Standard materials have been used throughout, and the installation is one which might well be followed by anyone making one similar. When completed the interior of all of the pump houses will be painted white and the exterior will be painted green.

Table showing pumps and motors installed on the ranch of the Salinas Land Company, King City, Calif.

Pump No.	Make	Size	Motor	Hp.
1	Byron Jackson	12-in.	Fairbanks-Morse	75
2	Layne & Bowler	16	General Electric	75
4	" "	16	Westinghouse	75
5	" "	16	Allis-Chalmers	75
7	" "	12	Westinghouse	100
8	" "	16	"	100
9	" "	16	"	125
10	" "	16	"	100
11	" "	16	"	100
12	" "	16	"	125
14	" "	16	Fairbanks-Morse	125
15	" "	16	Westinghouse	125
	Booster, Fairbanks-Morse	8	Fairbanks-Morse	40

Safety Orders Are Now Available.—The 1925 edition of the Electrical Safety Orders of the Industrial Accident Commission of the State of California is now ready for distribution. Copies may be secured by making application to the commission, State Building, San Francisco. Several thousand applications are now on file, and these are being filled as rapidly as shipments of the Orders are received from the state printer.



THE building in the upper left-hand picture contains the main switch and master meter for the four pumping plants which are grouped together by the Salinas Land Company at King City. To the right of this is one of the pump houses; the air chamber which takes the water hammer can be seen in the foreground. The lower pictures show the motor and switchboard for this pump.

Electrical Estimating for the Contractor — IV

The Making of an Electrical Layout for a Typical Small Power Installation Is Continued in This Article

By J. R. WILSON*, Engineering Department, Los Angeles Electric Works

In the Sept. 1 issue of the Journal of Electricity (p. 180) we started to make an electrical layout of a typical small power installation.

Referring to Fig. 3, we have the set-up of the sub-switch board. Also Fig. 4 gives the set-up of the equipment at the test plug board, and Fig. 5 gives a schematic one-line drawing of the wiring layout. Fig. 6 shows reversing switch layout and control button at lathe.

It will be noted that the wiring to the test plug board is laid out in a run of 9 No. 14 wires in a 1-in. conduit. This could have been laid out as a sub-feeder of 3 No. 8 wires in ¾-in. conduit, but would have required an additional 60-amp. switch to protect this sub-feeder. It also would have placed the individual plug switches at the test plug board and would have increased the size to a considerable extent.

Fig. 7 shows the termination of the ground line in a "safety" bus clamp. This is a 4-bolt cast iron clamp, sheradized, and can be obtained in various sizes to meet almost every requirement. The writer uses these clamps (because they necessitate using only one pipe as a "bus" ground line), fastening both service and equipment ground straps to the one pipe as shown on Fig. 2.

Fig. 8 shows our "take off" sheet on this job, and Table IV shows very

* All rights reserved by the author.

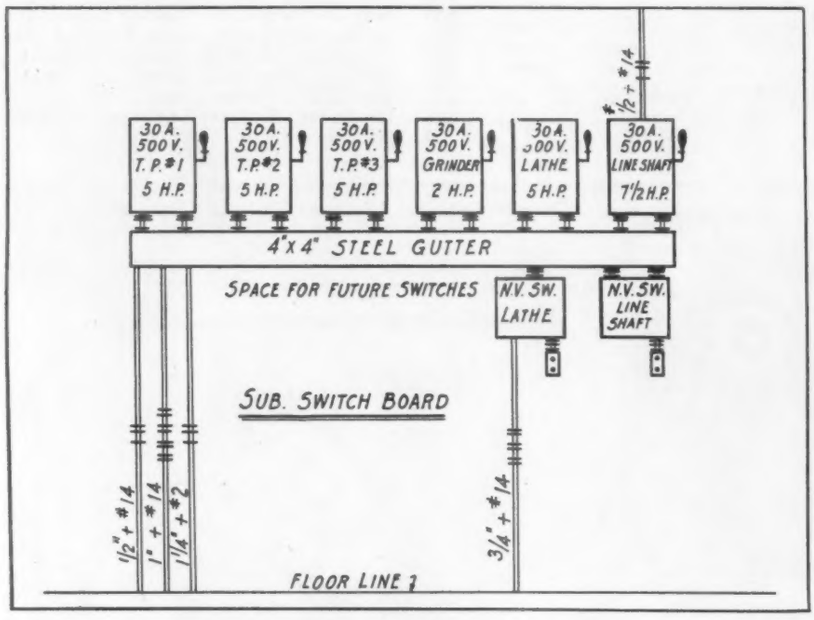

30 A. 500 V. T. P. #1 5 H.P.
30 A. 500 V. T. P. #2 5 H.P.
30 A. 500 V. T. P. #3 5 H.P.
30 A. 500 V. GRINDER 2 H.P.
30 A. 500 V. LATHE 5 H.P.
30 A. 500 V. LINE SHAFT 7½ H.P.
4" X 4" STEEL GUTTER
SPACE FOR FUTURE SWITCHES
N.V. SW. LATHE
N.V. SW. LINE SHAFT
SUB. SWITCH BOARD
FLOOR LINE

Fig. 3

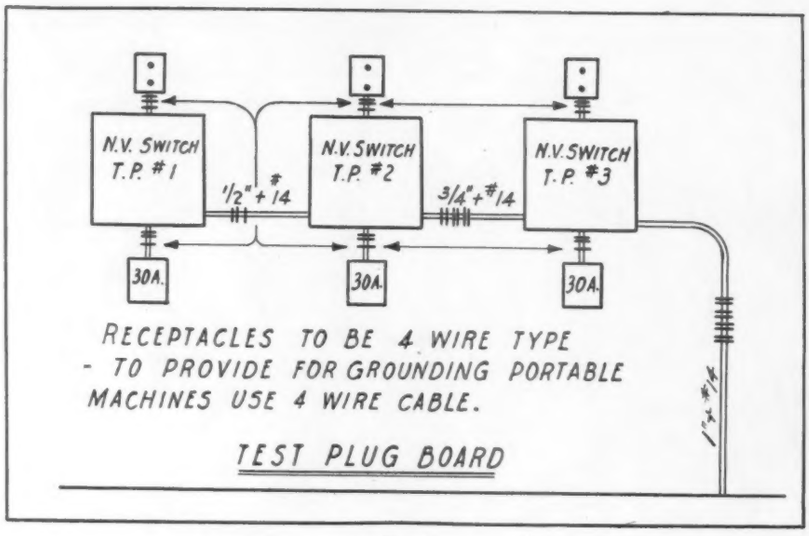

N.V. SWITCH T.P. #1
N.V. SWITCH T.P. #2
N.V. SWITCH T.P. #3
30A.
30A.
30A.
RECEPTACLES TO BE 4 WIRE TYPE - TO PROVIDE FOR GROUNDING PORTABLE MACHINES USE 4 WIRE CABLE.
TEST PLUG BOARD

Fig. 4

TABLE IV

Date.....6/24/25.....

Name.....JOHN DOE MACHINE WORKS.....

Address.....917 Blank Street.....

Quantity	Size	Material	Cost
1	No. 20053	S.O. switch	
2	No. 10053	S.O. switch	
1	No. 6053	S.O. switch	
7	No. 3053	S.O. Switch	
1	No. 3053	N.F. Switch	
3	200-A 600-V	Cart. fuses (N.R.)	
3	100-A 600-V	Cart. fuses (N.R.)	
3	65-A 600-V	Cart. fuses (renewable)	
3	50-A 600-V	Cart. fuses (renewable)	
3	30-A 600-V	Cart. fuses (renewable)	
12	25-A 600-V	Cart. fuses (renewable)	
3	15-A 600-V	Cart. fuses (renewable)	
3	5-A 600-V	Cart. fuses (renewable)	
6	65-A 600-V	Renewal links	
6	30-A 600-V	Renewal links	
24	25-A 600-V	Renewal links	
6	15-A 600-V	Renewal links	
6	5-A 600-V	Renewal links	
5-ft.	2-in.	Black conduit	
	1¼-in.	Black conduit	
	1-in.	Black conduit	
	¾-in.	Black conduit	
	½-in.	Black conduit	
60-ft.	1/0	DBRC stranded wire	
	No. 2	DBRC stranded wire	
	No. 6	DBRC stranded wire	
	No. 8	SBRC solid wire	
	No. 10	SBRC solid wire	
	No. 14	SBRC solid wire	
10	2-in.	Lock nuts	
12	1¼-in.	Lock nuts	
18	1-in.	Lock nuts	
28	¾-in.	Lock nuts	
100	½-in.	Lock nuts	
5	2-in.	Bushings	
6	1¼-in.	Bushings	
9	1-in.	Bushings	
14	¾-in.	Bushings	
50	½-in.	Bushings	
1	2-in.	Blk. cond. ell & coup.	
2	1¼-in.	Blk. cond. ell & coup.	
2	1-in.	Blk. cond. ell & coup.	
1	¾ x ½-in.	Ground clamp	
10		Ground bolts	
10-ft.		Ground strap	
12-ft.	4 x 4-in.	Gutter	
4	4 x 4-in.	Gutter ends	
1	18 x 30 x 10-in.	Meter can	
5-ft.	¾-in.	Greenfield	
10-ft.	½-in.	Greenfield	
4	¾-in.	Greenfield connectors	
8	½-in.	Greenfield connectors	
1	2-in.	Straps	
2	1¼-in.	Straps	
4	1-in.	Straps	
11	¾-in.	Straps	
17	½-in.	Straps	
1	E 6	Conduit	
1	A 3	Conduit	
1	No. 63	Conduit cover	
1	No. 53	Conduit cover	
2	2-in. x 3-in.	Nipples	
2	1¼ x 3	Nipples	
3	1 x 3	Nipples	
3	¾ x 3	Nipples	
29	½ x 3	Nipples	
1	¾ x 6	Nipples	
1	½ x 6	Nipples	
1 gross	1 x 9	F.H. wood screws	

Meter board materials allow.....$ 2.50
Sundries 2.00
Inspection 14.50
Labor .....
Cost .....$.....
Overhead 23% } Plus 50%
Profit 10% }
Selling price.....$.....

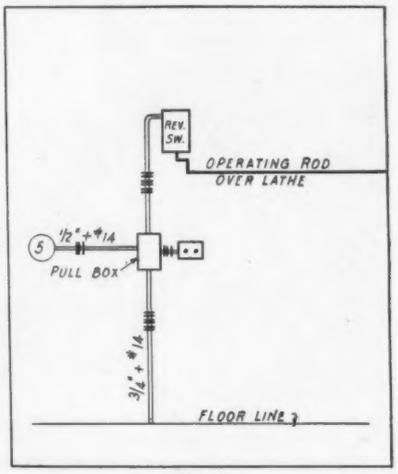


Fig. 6

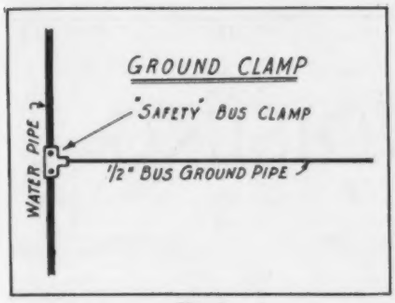


Fig. 5

clearly the items of material which enter into the estimate for the job.

Rules of local inspection departments may vary regarding installation methods, but the layout shown here will serve to indicate the general sequence of operations in analyzing a power job. Our next installment will deal with a power installation in a lumber mill.

The writer will be glad to supply more detailed information regarding any of these articles. Inquiries may be addressed direct to him or in care of the Journal of Electricity.

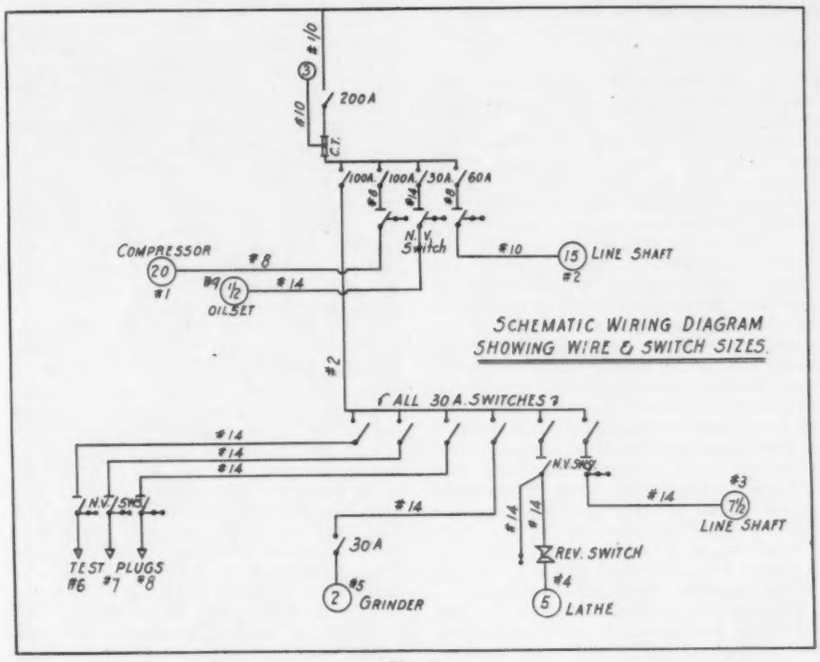


Fig. 7

Industrial Lighting Committee Issues Revised Plan Book.—The revised Plan Book of the Industrial Lighting Committee of the N.E.L.A. is ready for distribution, and copies may be had upon application to the committee at 29 West 39th Street, New York. The plan as outlined is a comprehensive campaign for increasing the industrial lighting load of the electric service companies and for stimulating the sale of industrial lighting reflectors, lamps, conduit wiring devices and similar equipment.

To Call for Bids for Street Lighting System.—Bids for the installation of an ornamental street lighting system in a section on West Main Street, will be received in the near future by the city council of Kelso, Wash. The work involves furnishing labor and material and installing twenty-seven standards, light fixtures, concrete foundations, pole base transformers, disconnected potheads, 4,000 ft. 3,500-volt No. 6 cable, and making all connections. Seven standards from another system will be changed by the successful bidder.

Nine-year-old Hughie, whose father is an electrical engineer, picked up a wasp. As he stood ruefully sucking his thumb his father came upon him and asked what was the matter.

"That bug's wiring was wrong," answered Hughie. "I touched him, and he wasn't insulated at all."

—The Synchronizer.

Little Clifton, who had been taken into the country for a day's outing, saw a spider spinning a web between two tall weeds.

"Hey, Pop!" he yelled, "come on over here and see this bug putting up a wireless!"—Laboratories' Data.

JOB NO. 1734 DATE 6/24/25

POWER ESTIMATE SHEET

NAME JOHN DOE MACHINE WORKS ADDRESS 917 BLANK STREET PHONE TR. 1974

LOCATION	H. P	SWITCH 440V.	FUSE 440V.	CONDUIT	WIRE	LOCKNUTS	BUSHING	ELL	COUP	BOX	COVER	GR. CABLE	GR. CONS.	STRAPS	CONDULETS	NIPPLES	P. & I.
SERVICE	123	200A.	3/200	5'/2"	60/1/0	10-2"/2-1"	5-2"/1-1"	1-2"	1-2"	6'-4"X4" GUTTER & ENDS				1-2"	E6 & #63C	2-2"X3"	1/25
SUB FEED	59½	100A.	3/100	1¼"	#2	12-1¼"	6-1¼"	2-1¼"	2-1¼"	6'-4"X4"	"	"	"	2-1¼"	A3 & #35C	2-1¼"X3"	-
COMPRESSOR	20	100A.	3/65E	¾	-#6 -#8	12-1"/2-¾"	6-1"/1-¾"	-	-	-	-	3 ¾"	2 ¾"	4-¾"	1-½"X3"	3-1"X3"	2/50
LINE SHAFT	15	60A.	3/50	¾	-#6 -#10	14-¾"	7-¾"	-	-	-	-	2 ¾"	2 ¾"	4-¾"	1-½"X3"	3-¾"X3"	2/00
" "	7½	30A.	3/30	½	#14	20-½"	10-½"	-	-	-	-	2 ½"	2 ½"	4-½"	-	5-½"X3"	1/50
LATHE	5	"	3/25	½	#14	20-½"/8-¾"	10-½"/4-¾"	-	-	-	-	2 ½"	2 ½"	3-¾"/2-½"	-	4-½"X3"	1/50
TEST PL. #1	5	"	"	1"	#14	4-1"	2-1"	2-1"	2-1"	-	-	-	-	-	-	4-½"X3"	1/50
" #2	5	"	"	-	-	4-¾"	2-¾"	-	-	-	-	-	-	4-1"	1-¾"X6"	4-½"X3"	1/50
" #3	5	"	"	-	-	28-½"	14-½"	-	-	-	-	-	-	-	1-½"X6"	4-½"X3"	1/50
GRINDER	2	"	3/15	½	#14	16-½"	8-½"	-	-	-	-	3 ½"	2 ½"	3-½"	-	2-½"X3	1/00
OIL SET	½	"	3/5	½	#14	16-½"	8-½"	-	-	-	-	3 ½"	2 ½"	3-½"	-	4-½"X3"	/25
GROUND	-	-	-	½"	-	1 - 3/4"X½" CLAMP-10 GRD. BOLTS-10' GRD. STRAP								5-½"	-	-	14/50
						1 - 18"X30"X10" METER CAN											
						ALLOWANCE FOR SCREWS, METER BOARD MATERIALS AND OTHER SUNDRIES.											
						NOTE: 30 A. N.F. SWITCH FOR GRINDER											

Fig. 8

BETTER MERCHANDISING

"Certificate" Assists Vacuum Cleaner Campaign

Offering Housewives Free Rug Cleaning Results in Large Sales of Cleaners and Attachments

By the application of an unique sales stunt coupled with the usual advertising and sales effort, the Pacific Power & Light Company, Portland, set a new high mark in its annual spring vacuum cleaner campaign carried on in April under the direction of V. H. Moon, appliance sales superintendent. In the 30-day period 404 cleaners and 165 sets of attachments were sold as against 256 cleaners last year, or an increase of nearly fifty-eight per cent over the most successful campaign up to that time.

The punch in the campaign centered around the so-called "Certificate of Cleaning". The card used for this is reproduced on this page, and, as may be seen, offered an opportunity to the householder to have a rug cleaned, and also entitled him to a chance on one of the seven cleaners given away in a drawing at the end of the campaign. The cards were slotted so that they could be hung over the knob of the front door. Distribution of the cards was made prior to the commencement of the campaign by boys hired for the purpose in each town served, and by mail in the rural districts. Practically 30,000 cards were distributed by these methods, reaching virtually all the residential customers of the company in its several districts.

All the customers had to do was telephone for an appointment to have a rug cleaned. A company representative then called at the appointed time, and in the course of cleaning the rug was able to put across a complete demonstration of the Premier Duplex cleaner, which was the one chosen for the campaign. On completion of the demonstration the "Certificate of Cleaning" was filled out with the name and address of the householder, initiated by the company representative, and detached for entry in the drawing, the householder retaining the other half of the card carrying the duplicate number. At the end of the campaign the returned certificates were segregated into seven groups of nearly equal numbers, representing seven general territorial divisions. A winner was then drawn by lot from each group, and by this method of seeding, the seven free cleaners were scattered over a wide territory and seven different towns were represented in the fruits of the drawing. In the case of a winner having been a purchaser during the campaign, the down payment was refunded and the balance of the purchase price was credited.

Counsel had advised that this was not a lottery inasmuch as the contestants had not paid anything with the expectation of receiving anything. Notwithstanding this interpretation of the lottery law, one postmaster refused to pass the cards through the mail and also refused to accept for mailing any newspaper carrying a company advertisement containing a reference to this drawing. It was a matter of small moment to delete such reference from the advertising copy for the newspapers of this town and to omit the rural districts served by this post office.

The benefits of such a plan will be obvious to the merchandiser. By means of it a list of the "livest" prospects in each community was secured, and the waste effort incident to a house-to-house canvass was eliminated. At the time the company representative called to do the cleaning as per agreement, he attempted to close a sale by means of his demonstration. Failing in this, he took his information about the prospect back to the office where the proper notations were made, and, of course, followed up the more live of these prospects later in the campaign.

Some humorous situations were encountered, several householders utilizing the opportunity to obtain gratis a little assistance with the spring housecleaning. But even in such instances the salesman was instructed to follow out to the letter the company's part of the agreement to clean a rug and turn in a card for the drawing. That the plan was successful is evidenced by the fact that over 2,000 requests for a rug-cleaning were received. To have sold twenty per cent of these prospects was considered a good showing. In addition, an excellent list of prospects, represented by the best prospects not sold during the campaign, was secured and filed away for future use.

Other advertising media used included printing on the backs of envelopes carrying the monthly bills, car banners, bill boards and local newspapers. In this advertising among other things the offer of "$10 for your old cleaner" was featured. This applied to any old cleaner in whatever state of repair and disrepair.

A feature of the newspaper advertising was the tie-in with the Saturday Evening Post advertising on the Premier cleaner, a double-page spread in color appearing about the middle of the campaign. Reprints of this were posted in the company's store windows, and attention was directed to it in the advertising copy in the local newspapers.

To stimulate activity among the employees outside of the merchandising department, quotas were allotted to the districts and prize money offered for the highest percentages of quota reached. The so-called President's Cup, a trophy of some years' standing, offered for excellence in merchandise sales, was a feature of the competition and was won by the Yakima, Wash., district, which sold 95 cleaners and 66 sets of attachments, making 250 per cent of its quota.

At pre-campaign meetings bringing together in the several districts the sales forces and others interested in merchandising, a series of lessons in the proper method of demonstrating the cleaner was given by Charles Pearl, Pacific States Electric Company, Portland.

This offer expires on April 30
Six Premier Duplex vacuum cleaners will be given housekeepers served by this company. Here is your opportunity to try for one.
How to get a rug cleaned — and possibly a vacuum cleaner, FREE!
1. Telephone us if you want a rug cleaned —and when. You will be under no obligation. "First come, first served."
2. When your rug is cleaned fill out the "Certificate of Cleaning" and leave our representative initial it. Then detach it for him to bring back to our office.
3. Early in May names of the winners will be drawn. Your number may get one of the six Premier Duplex Cleaners!
4. Important:—Only completely filled out and initialed "Certificates of Cleaning" will be drawn. Only one Certificate to a customer.
Note: Save this part of the Card for your identification number. No. 15009
(A "Certificate of Cleaning" may bring you one of six Premier Duplex Cleaners FREE! Give us the opportunity to fulfill the conditions.)
Telephone any of our offices.
PACIFIC POWER & LIGHT COMPANY
Certificate of Cleaning
(This Certificate, when signed by you and initialed by our representative, gives you an opportunity to get a Premier Duplex vacuum cleaner FREE!)
This is to certify that your representative has today cleaned a rug in my home thereby entitling me to an opportunity to win one of six Premier Duplex cleaners FREE!
Date
No. 15009
Name
Address
Signed P. P. & L. Co.
By
This card brings you a free cleaning of a rug and an opportunity for
a vacuum cleaner FREE!
HOW? you ask—read the other side

A clean bill of health offered by the Pacific Power & Light Company of Portland in its record-breaking spring vacuum cleaning sale recently. These tags, offering housewives a free rug cleaning, were slipped over door knobs. Both sides of the card are reproduced here

Boys Aid in Unique Lamp Selling Campaign

E. Roy Nash, Salinas and Monterey Electrical Dealer Sells 1,046 Lamps in Twenty-four Day Contest

Quiet months hold no terrors for the ingenious. They merely present a challenge. At least to E. Roy Nash and his organization, of Salinas and Monterey, Calif., the so-called quiet months of the summer held out only opportunity for a unique sales plan by which he disposed of 1,046 lamps in a twenty-four-day period, adding 80,275 watts to the lines of the power company, besides making scores of housewives his friends.

The essentials of Roy Nash's plan were simple. Take a bunch of boys during summer vacation, anxious to earn spending money, set up a radio set as a prize, teach them something about lighting and lamps, give them market baskets loaded with all kinds of lamps and turn them loose in a wide-awake town—there you have it.

Although, in essence, such was the plan, the details themselves are interesting. They show considerable originality, a keen sense of the possibilities for lighting sales, and a smoothly working organization.

About two weeks before the date selected for the opening of the contest some rather large advertisements addressed to the boys of the city, were run in the local papers. In them, boys were told that the E. Roy Nash Company was going to give a $120 radio set away to some boy who made the highest score in a contest, the details of which boys might learn by calling at the store.

About twenty applicants responded, and from that group ten were selected to come back three nights a week to receive some well thought out information in respect to the basic principles of better home lighting. In the classes subsequently held the boys were given a pretty thorough course of instruction, and, too, they were given books to read on better lighting. An examination at the end of the course eliminated some of the less ambitious, and the crew finally was reduced to four, the number thought right to conduct the campaign with.

The town then was blocked out in districts, each boy being assigned a district containing practically equal opportunity. Each boy was to work his district in a careful and intelligent manner. The store, of course, gave them all the help it could, even going so far as to make the first few calls with the boys to get them started right.

Each boy was given a market basket filled with lamps of various wattages. Meanwhile advertisements were running in the papers continuously, preparing the public for the visits from the boy salesmen of the contest. People were told further that now was a good time to check up on the supply of lamps in their homes, that the boys would bring lamps to them and thus save them the inconvenience of a trip to the store to buy. Emphasis was placed on the "kitchen specials", which were the 75, 100 and 150-watt.

Although one of the boys quit before the week was over, the campaign went on with the three remaining boys. When the contest had closed the following results were tabulated:

The contest ran for 24 days.

Three boys were employed, whose ages were 11, 12, and 14, respectively.

1,046 lamps had been sold.

The wattage aggregate had been increased 80,275 watts.

Sales amounted to $490.08.

There had been sold 158 75-watt lamps replacing 50-watt lamps; 124 100-watt lamps replacing 50-watt lamps; 47 150-watt lamps replacing 50-watt lamps; and 30 200-watt lamps replacing 50-watt lamps.

The foregoing figures are for lamps sold by the boys only, but the E. Roy Nash Company also was gratified to find at the end of the month that its lamp business was over 300 per cent of the average monthly business—in a comparatively quiet month, too.

Advertising expense was figured at 5½ per cent of the sales, and commissions amounted to 5½ per cent of sales. They did 96 per cent cash, and 4 per cent credit business in the sale. The commission schedule, to compensate the boys for their efforts, regardless of whether they won the prize or not, was as follows:

For every lamp of from 10 to 50 watts, 2 cents; from 50 to 60, 3 cents; from 60 to 75, 5 cents; from 75 to 100, 7 cents; from 100 to 150, 8 cents; from 150 to 200, 10 cents.

To the boy getting the highest score in points of credit was given a radio set which sold for $120. The boy getting the next highest number was given a kit of radio parts selling for $40. Points of credit were worked out on a similar basis to the plan for commissions, except that the points were reckoned not only on actual sales but on replacement of low wattage for higher wattage and other considerations. Details of the credit and commission schedules and other parts of the plan will be furnished other dealers by the Nash organization upon request.

Certainly the entire plan commends itself to the imagination of any dealer of lamps, and also offers possibilities of development for other lines of merchandise.

Sixth Electric Range Sale Breaks All Former Records

The sixth electric range sale in a three-year period surpassed all previous campaigns in the experience of The Washington Water Power Company, which closed the last campaign recently.

The total quota set for the system was 360 ranges, and the total sold was 469, or 30 per cent greater than was anticipated.

For the latest campaign the Westinghouse junior cabinet range, with automatic control, was selected as the especial feature, and in the advertising program a radical departure was made from previous practice. The items making up the total price installed were plainly stated in the advertising, as follows:

Junior Cabinet Westinghouse electric range	$129
Wiring for range and water heater	40
Electric water heater	10
Fiberform cover for hot water tank	10
Total price	$189

$4.00 Down—The balance in small payments with your monthly light bills.

With this form of plain advertising a customer who was familiar with present prices could see at a glance that the cost of a first class electric range was somewhat less than that of a coal, wood, or gase range of equal quality and capability.

Quotas for Spokane and the other towns on the system were set carefully, after analysis of previous campaigns. In making up the quota for the country towns it was decided to use as a basis two ranges for each employee, and thus a total quota of 198 ranges was determined. This figure was considerably higher than previous records justified.

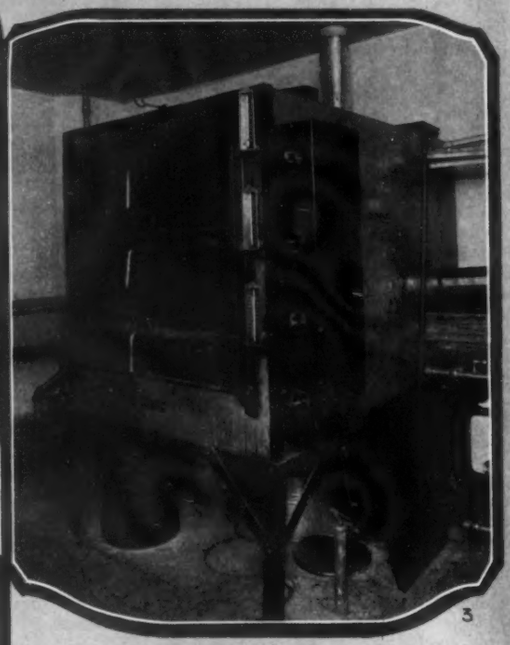
The advertising in Spokane and country towns consisted of ample space in the newspapers, broadsides mailed to prospective customers, and small attractive folders. In Spokane two illuminated billboards located on principal car lines were used.

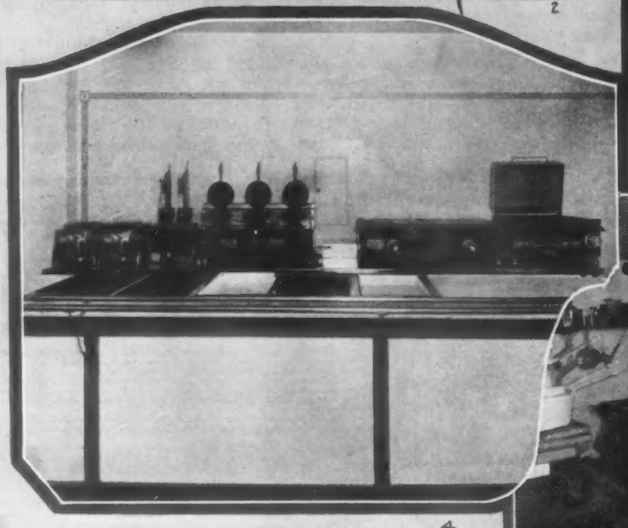
At the close of the campaign it was noted that in Spokane one residential customer out of every six is a range user, and in the country one out of every three. For the whole system, one customer out of five is a range user.

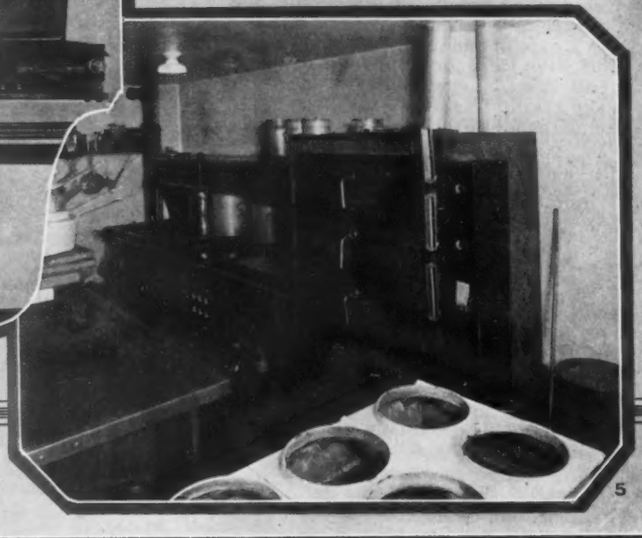
Making Spokane a City of Electric Ranges
Now Selling More Ranges Than Ever Before
Junior Cabinet Westinghouse $189
Special Down Payment $4
$4.00 DOWN $4.00
Westinghouse
Automatic
Electric Ranges
An Electric Range at the Same Price as a Good Fuel Range
The Washington Water Power Co.
Corner Trent and Lincoln
Telephone Main 5171
COOK BY WIRE INSTEAD OF FIRE
Sale in Progress in All Our Inland Empire Branches

Type of advertisements run by The Washington Water Power Company in its recent successful range sale, in which the records of previous sales were surpassed. The fact that an electric range could be obtained as cheaply as any other fuel range was made a feature of the sale

SALT LAKE CITY'S electrical cafeteria is claimed to have the largest cooking load in the West, and also to be the most economical. 1. The fountain, a feature of the place, has many electrical helps. 2. Electric coffee and cocoa urns serve quickly and consistently well. 3. The electric oven, in which the cafeteria's bread, pastries, and baked dishes are prepared. 4. Grilled steaks, toast, eggs and hot cakes are prepared electrically here. 5. One of the heavy-duty electric ranges in a corner of the well equipped kichen. This installation includes electric refrigeration, and many motor-driven units in the kitchen. In the dining room particular attention has been paid to ventilation and lighting.







Electrical Cafeteria at Salt Lake Proves Economy

Besides Cooking, Baking, Refrigeration and Ventilation, Electricity Performs Many Other Tasks

One of the most interesting examples of complete electrification in the restaurant business is that of Shay's Cafeteria, which now is operating in its new location in the Thompson Building in Salt Lake City.

Shay's Cafeteria is described as a stolen bit of old Egypt set down in Salt Lake and modernized to the highest degree. In designing the new cafeteria a great deal of attention was given to the harmonizing of every detail to produce the maximum comfort and efficiency with the minimum space and effort.

In this cafeteria electricity has been utilized for practically every purpose where it is feasible. At the front entrance the customer is greeted by a large electric sign in the form of a flaming arrow, reading "Cafeteria." At the fountain toasted sandwiches are made in an automatic electric sandwich toaster. Coffee is served piping hot from a battery of six electric percolators, and steam table foods are kept hot in an electrically heated steam table. Soiled dishes are carried on an electric elevator to the basement where they are cleaned in electrically oprated steam dish-washers.

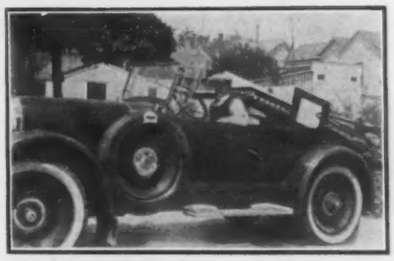
Passing through the foyer the customer enters the main dining room, which has a seating capacity of 400. This room is arranged with a main dining salon and a mezzanine, with two small dining rooms at the rear of the upper floor for private parties. The lighting effects are produced from a large roof window which floods the center of the dining room with sunlight. The lights are of opal glassware suspended from fixtures or placed against the ceiling. The glassware is etched with a tan design.

At the rear of the dining hall and separated from it by a plaster partition, are the double serving counters. These are finished in nickel and white enamel with white glass tops.

Just at the entrance to the serving counters is the short order department, where orders are filled for toast, eggs, waffles, hot cakes, broiled meats, or any of the similar foods. All these orders are cooked on electrically operated and electrically heated devices. At the end of the serving counters coffe or chocolate is served from three electrically heated urns.

In the kitchen the real heavy-duty cooking equipment is installed. This includes one Edison 120-loaf oven, which operates all day to supply the demand for pastries; one 60-loaf roasting oven installed in the range section to handle the roast meats, macaroni, or any of the baked dishes, and a battery of three Edison hotel-type ranges 12 ft. long. All the range work of the cafeteria is done on these ranges. Steam vegetable cookers take care of the boiling operations in the kitchen, while a steam pressure cooker handles the steam parboiling and other work of this class.

A novel method has been adopted by the Utah Power & Light Company to present a bird's-eye view of electric cooking in Salt Lake City. A large map of the city, in which is inserted a black-headed pin for each electric range installation, is displayed in the company's store and attracts considerable attention, enabling the observer to visualize at a glance the very favorable situation in that city in regard to the use of electricity in cooking. Approximately 4,500 electric ranges are in use there, and all are shown on the map



Bringing the mountain to Mahomet, as it were, was J. C. Douglas, range specialist for the Edison Electric Appliance Company, in the central and northern California territory. When the new RA73 sample arrived, Mr. Douglas loaded it into the rear of his car and took it with him to hold demonstrations at the offices of dealers and power companies. He was anxious to show it to the largest number in the shortest time, and his novel stunt is said to have attracted considerable interest, incidentally landing orders for many ranges.

In the basement is located the refrigeration plant, which supplies the ice boxes, the iced counters, the fountain and the cooling chambers with the necessary low temperature. This plant is operated by an electric motor. Other motor-driven devices are ice cream freezer, potato peelers, dish washers, glass washers, and tray sub-veyors which carry the soiled dishes from both floors of the dining room to the basement where they are washed and sterilized in live steam.

An electrically driven ventilation system, which forces washed air into the dining room through vents, also draws the air out through other ducts, making a complete change of air possible every five minutes. This method eliminates the objectionable odors so common in public dining rooms.

The total connected electrical load in this cafeteria is 125 kw. of cooking equipment, 50 hp. of motive power and approximately 18 kw. of lighting. Since the opening of the establishment there have been about 54,000 meals per month served, and 17,000 kw-hr. required to cook them, or .315 kw-hr. per meal.

This is claimed to be the largest electrical cooking load for general restaurant work in the western part of the United States. This cafeteria also is said to be the most completely equipped to perform with electricity the various tasks formerly done by other fuels and motive power. Records show that in actual operation it is one of the most economical and efficient installations in the United States.

NEWS OF THE INDUSTRY

Oregon Committee on Relation of Electricity to Agriculture Issues First Report

"When the lines are built the solution of the problem of electric service on the farm has only been begun." This is one of the introductory statements in a report on the status of the rural electrification problem in Oregon issued recently by the Oregon Committee on the Relation of Electricity to Agriculture through the medium of a booklet entitled, "Electricity in Oregon Agriculture." This is the first report of this committee formed last year with James T. Jardine, director of the experiment station, Oregon Agricultural College, Corvallis, Ore., as chairman, to conduct the initial survey of the problem (Journal of Electricity, Sept. 15, 1924, p. 221). The data secured in this survey are not included in the booklet, but the statements and conclusions in the booklet are based on the data collected.

In the introduction presenting the general problem, the report estimates that approximately 7,500 Oregon farms, of 15 per cent, have electric service, of one kind or another, two-thirds having central station service and one-third having private plants. The magnitude of the task of electrifying all the farms is expressed as follows:

"Assuming an average of 2.5 farms per mile, it will require 20,000 miles of distribution lines to reach the farms of Oregon. At an average cost of only $1,000 per mile, this represents an investment of $20,000,000.

"In order to use electricity properly on the farm two dollars will be required for wiring and equipment for every dollar spent in rural distribution systems. This makes an additional investment of $40,000,000, a total greater than the present value of mechanical equipment in Oregon farms."

The question then is asked, "Can a reasonable return be made on this investment?"

Several specific problems that have presented themselves to the committee for solution next are listed. These include questions as to whether increased yields of various crops secured through irrigating by electric pumping will pay a return over and above the cost of such irrigating; questions involving the determination of the best type of equipment to use for irrigation and other purposes; and questions pertaining to the use of electricity in grinding feed, in poultry and egg production, in dairying, and for warming drinking water for stock in winter.

The need for cooperation of the commercial and industrial interests involved is stressed, and a short history of the formation of the Oregon committee in cooperation with the national committee is given. The aims and scope of the work of this committee are expressed in part as follows: "That the first step in the investigation should be a state survey to determine the present status of rural electric service. That this survey would furnish the basis for the development of an investigation program which would extend over a period of at least five years."

Summarizing the results of the field survey conducted under the auspices of the committee in the summer of 1924 by Prof. W. J. Gilmore and Prof. F. O. McMillan of the Oregon Agricultural College, the report states that 188 farms were investigated. The data follected revealed, among others, the following facts:

"That there were an average of 4.17 users per mile of distribution line.

"That 26 per cent of the farmers on these lines were not using current primarily because of lack of ability to finance the undertaking.

"That the most extensive use of electricity on farms was for lighting and household conveniences, since 44 per cent of the electrical consumption by farmers was for household uses.

"That the more extended use of electric service does not depend so much upon the price of current as upon the farmer's ability to finance the purchase of equipment.

"That in the last analysis the price of current per kw-hr. will depend largely upon the volume of use. * * *

"That a more extended use of electricity will improve living conditions as indicated by answers from farmers. This can be obtained in most cases, however, only by increased living costs, unless electricity can be made to pay its way by lessening production costs of farm products."

In discussing the future plans of the committee, the report reaches these significant conclusions:

"After thoroughly reviewing the data gathered, the members of the committee agreed that today the art of generating and distributing electric current is well in advance of the art of using it on the farm. It is not a case of more power stations, but of finding out whether or not an electric load of sufficient size can be built on the farm so that the farmer can afford to carry the necessary expense involved in furnishing service. * * *

"After everything possible has been done, therefore, towards reducing generation and distribution costs, it is evident that the fair price of electricity is going to depend upon how large a load the farmer can profitably use."

With the view to determining to what extend this load can be built up, the report then recommends a further investigation of some of the questions raised in the statement of the specific problems made earlier in the booklet, and concludes by stating that the electric light and power industry had provided funds for a continuance of the work this year to carry out the suggested investigations.

Murphy Returns from Lamp Men's Annual Convention

Returning from a month's trip over the northern and Pacific Coast territory, enroute to and from the annual meeting of district managers of the Westinghouse Lamp Company at Garden City, Long Island, N. Y., Ray W. Murphy, Pacific Coast manager for the lamp company, has returned to his accustomed activities at the main office in San Francisco.

Mr. Murphy brought to the district manager's annual meeting of the Westinghouse Lamp Company the Pacific Coast territory's experiences and activities. The meeting was held for the purpose of discussing the lamp sales program for the year, and for demonstrating new features of the lamps to be brought out by the company during the next year. The Pacific Coast region is considered one of the most important units in the company's field, having branch offices at Seattle, Los Angeles and Salt Lake, and men stationed at Spokane, Portland and El Paso.

RAY W. MURPHY

On his trip East Mr. Murphy conferred with his branch managers at Portland, Seattle and Spokane, and also stopped at Butte, Mont. On his return he stopped at the Salt Lake City office.

While at the district manager's conference in Long Island, Mr. Murphy's well known proficiency at golf stood him in good stead in competition with Eastern managers, for it was reported that he annexed honors in his favorite game for the Pacific Coast division, by way of completely rounding out his trip.

Great Western Starts 220-kv. Line to Connect with San Joaquin System Near Merced

For over a hundred miles, as straight as the schoolbook geometry definition of "the shortest distance between two points," the new 220-kv. line of the Great Western Power Company of California to connect with the lines of the San Joaquin Light & Power Corporation, will be hurried to early completion. With the authorization of the line from the State Railroad Commission, Sept. 14, work began in earnest on the project. So well organized for the start was the Great Western organization that three crews immediately took the field and before the week was finished were well under way.

The new line of the Great Western Power Company is to run from its Brighton substation, six miles east of Sacramento, in a straight line to a point a short distance east of Merced, where it will make its only bend and terminate at a substation, also to be constructed, a mile and a half southeast of Merced. The substation there is to be of the outdoor type, to step down the voltage to prevailing voltages on the San Joaquin system. It will contain condenser equipment also.

Steel towers, spaced 230 ft. apart, will carry the line its length of 102¾ miles. The line is to be of twin-circuit construction, although only one circuit will be strung at the present time. While every piece of equipment is to be provided for 220-kv. operation, the line is to be operated at 165-kv. at present until other contemplated construction has progressed to a point at which operation at the higher voltage may be undertaken.

Conductors are to be aluminum cable, 1.093 in. in diameter, with a conductivity rated at the equivalent of 500,000 copper. The conductors will be spaced 16 ft. on the vertical plane, and there will be 27-ft., 4-in. spacing between circuits. Pacific Coast Steel Company towers will be used.

The substation is to contain a bank of 50,000-kva. transformers and necessary switch gear and equipment. The condenser is to be of 250,000-kva. capacity.

By fortunate circumstances, railroad lines interweave the path of the new line, making transportation of equipment quite facile. Three crews are in the field at present, digging for the footings of the towers and moving the equipment on the field as well as clearing the right-of-way. Interesting use of motor equipment is planned for the job, details of which are promised later.

Subcommittee Chairmen of Three Northwest Assn. Sections

The appointment of chairmen of subcommittees in three of the sections of the Northwest Electric Light & Power Association has been announced, and these chairmen rapidly are completing their organizations by the appointment of committee members.

Z. E. Merrill, assistant general manager, Mountain States Power Company, Albany, Ore., chairman of the Technical Section, announces the following chairmen of subcommittees in his section: Accident Prevention Committee—J. B. Fisken, The Washington Water Power Company, Spokane; Committee on Cooperation with Regulatory Bodies—H. J. Flagg, Gray's Harbor Railway & Light Company, Aberdeen, Wash.; Electrical Apparatus Committee—D. W. Proebstel, Portland Electric Power Company, Portland; Hydraulic Power Committee—O. L. LeFever, Northwestern Electric Company, Portland; Inductive Co-ordination Committee—G. E. Quinan, Puget Sound Power & Light Company, Seattle; Meters Committee—R. E. Thatcher, Puget Sound Power & Light Company, Seattle; Overhead Systems Committee—J. B. Brokaw, Eastern Oregon Light & Power Company, Baker, Ore.; Prime Movers Committee—C. C. Simeral, Portland Electric Power Company, Portland; and Underground Systems Committee—E. F. Pearson, Northwestern Electric Company, Portland. The executive committee of the Technical Section is composed of the above ten men and in addition, R. R. Robley, Portland Electric Power Company, Portland, F. J. Rankin, Idaho Power Company, Boise, Idaho, and H. H. Schoolfield, Pacific Power & Light Company, Portland.

W. H. Ude, director of public relations, The Washington Water Power Company, Spokane, chairman of the Public Relations Section, announces the following appointments to subcommittee chairmanships in his section: Customer Ownership Committee—Dwight Ware, sales manager, Puget Sound Power & Light Securities Company, Seattle; Industrial Relations Committee—Colonel H. G. Winsor, personnel officer, Puget Sound Power & Light Company; Public Speaking Committee—J. B. Fisken, consulting engineer, The Washington Water Power Company, Spokane; Committee on Cooperation with Educational Institutions—A. J. Priest, attorney, Idaho Power Company, Boise; and Women's Committee—Mrs. L. A. McArthur, Pacific Power & Light Company, Portland.

In the Accounting Section, A. J. Johnstone, auditor, Portland Electric Power Company, Portland, chairman, has appointed the following subcommittee chairmen: Classification of Accounts Committee—M. J. Wilkinson, assistant secretary and assistant treasurer, Pacific Power & Light Company, Portland; Fixed Capital Committee—J. A. Rockwood, valuation engineer, Portland Electric Power Company, Portland; Purchasing and Stores Committee—F. W. Brownell, comptroller, Puget Sound Power & Light Company, Seattle; Statistical Methods Committee—William Hawkes, cashier, Puget Sound Power & Light Company, Olympia, Wash.; and Revenue and Disbursement Committee—A. E. Janssen, treasurer, Idaho Power Company, Boise.

Denver League Name Changed.—Following discussion of the advisability of changing the name of the Electrical Cooperative League of Denver, the Advisory Board of that body recently decided in favor of the change, and chose the name, "The Electrical League of Colorado."

B. C. Electric Railway to Develop Bridge River Project

"We have decided to exercise an option on the Bridge River project, which we have held for a year and a half." Such was the announcement of George Kidd, president of the British Columbia Electric Railway Company, Vancouver, B. C., at the opening of the fifth and final unit of that company's Stave Lake plant. The opening was performed by the Hon. John Oliver, premier of British Columbia, on Sept. 19, before an assembly of 150 invited guests, representing leaders in business, civic and political life of the province. George Kidd, in making the announcement, said further:

"In that time we have made a thorough investigation of the possibilities of that development, and, while it will be a very costly one in the initial stages, we are confident that Vancouver and the lower mainland will justify the expenditure we intend to make."

As outlined by the engineers of the company, the B. C. Electric proposes to develop the plant in four stages. The first stage will develop 60,000 hp. at a cost of $13,271,000. The second stage will develop 30,000 hp. at a total cost of $14,700,000. The third stage will develop 150,000 hp. at a total cost of $28,000,000, and the fourth stage will bring the total expenditure up to $30,000,000, and will develop a total of 400,000 hp.

The capacity of the company's present equipment amounts to 164,900 hp. and 453,000,000 kw-hr. per year, without including the steam plant. The consumption during last year was 300,000,000 kw-hr. At a 10 per cent cumulative increase per annum the surplus supply will be exhausted by the end of 1929.

Edison Company Lets Contracts for Several Projects

Following closely the announcement of the letting of contracts for its Vincent line (Journal of Electricity, Sept. 15, p. 222), the Southern California Edison Company has announced further contracts for project work.

Contracts were let recently to C. E. Ingalls, California representative for the Electric Power Equipment Corporation, for the manufacture of forty-three 220-kv. three-pole, group-operated switches to be used at the Laguna Bell, La Cresenta, and Eagle Rock substations of the Southern California Edison Company in connection with the Vincent line.

The Westinghouse Electric & Manufacturing Company was awarded the contract to furnish twenty-one 220-kv. oil circuit breakers for use at these substations. The insulators for the entire line are to be manufactured by the Westinghouse High Voltage Insulator Company, whose plant is at Emeryville, Calif., and will be of the Westinghouse 632 high-strength, non-interchangeable type. On suspension towers single strings of insulators will be used; on canyon-crossing and dead-end towers double-yoke strings are specified. The contract calls for 50,000 insulators.

Announcement also was made of the awarding of contract to the General Electric Company for a 52,000-kw. turbo-generator for an additional unit to the Long Beach steam plant of the Southern California Edison Company.

Lively Meeting Launches Industrial Lighting Activity in Northern District

Nothing if not lively was the first meeting to discuss the N.E.L.A. Industrial Lighting Campaign held in the Pacific Gas and Electric Building, San Francisco, Sept. 21. Similar meetings are to be called in other districts, and because the plan of action is to be similar, an outline of the northern and central California district meeting will prove of interest.

A. M. Frost, sales manager, San Joaquin Light & Power Corporation, geographic chairman of the Industrial Lighting Activity for the Pacific Coast division, opened the meeting without formality. In fact, he definitely stated that he wanted to eliminate all "smoke screens" of superfluous organization and reduce the campaign to the utmost simplicity. Outlining the plan as a purely commercial one to "increase sales and profits," he described it as a unified sales plan wherein the various branches of the industry interested might profit from a concerted action rather than struggle under the handicap of individual effort.

H. H. Allison, Great Western Power Company, and C. E. Monteith, Pacific Gas and Electric Company, San Francisco, were named as vice-chairmen in charge of the activity in the northern and central California sector. Mr. Allison outlined the plan of action as simplified by Mr. Frost to be as follows:

Surveys of each city and town are to be made by the power sales representatives of the power companies, it being considered that they have a better knowledge of actual conditions on their meters than any other organization. Every industry and commercial enterprise, from the ordinary garage or tailor shop on up to the big industrial plant, is to be listed. Wherever there is need for better lighting, reflectors, glassware, or rewiring, these facts will be noted.

Each prospect listed is then to be interviewed by power company representatives and interested in better lighting. The prospect's contractor's name is to be learned, and then the prospect is to be turned over to that contractor. Where no preference is given as to contractor, the prospect is to be turned over to a contractor located near the prospect's place of business. Where there is competition, such prospects are to be drawn by lot. In case of disagreement as to a prospect the matter is to be referred to the contractor's association for decision.

Since it will be up to the contractor to sell the prospect on better lighting, special schools to train salesmen for industrial lighting sales are to be offered contractors and their employees. The educational activity of the campaign is to be headed by Clark Baker of the National Lamp Works, Oakland, Calif., who so successfully conducted the P.C.E.A. Better Lighting schools last year. He is to train fourteen men to present the industrial lighting sales message, these men to hold classes in each of the fourteen districts of the Pacific Coast division. The classes will be held at some convenient location, presumably in the evening, so that contractors, power company salesmen, and the salesmen of dealers, may attend.

Jobbers are to cooperate with contractors in the selling of better industrial lighting equipment. Many trained men will be put in the field by jobbing organizations and manufacturers to aid in putting the sales across. In cases where contractors fail to follow up prospects given them—and a follow-up system is designed to keep tab on the status of the campaign at all times—the jobbers may be asked to deal with the prospects direct.

The southern California territory was said to have started the activity already with the San Joaquin territory starting immediately. Mr. Frost intended to launch the activity in other sections of the Pacific Coast as soon as possible.

At the San Francisco meeting some valuable, as well as amusing, sidelights as to the position of the electrical consulting engineer in the development of more lighting and increased electric loads was presented in inimitable manner by Robert St. John, of Simonson & St. John, electrical engineering firm. He urged a complete combing of the field and promised rewards to the industry in proportion to the number of prospects called upon and the energy put into the campaign.

Ellensburg, Wash., City Council Seeks Information on Municipal Plant.—The city council of Ellensburg, Wash., has appointed an electric light committee and requested that body to obtain information on the employment of a technical expert, who will be asked to furnish the council with information as follows: value of the municipal light and power plant; what it will cost to put the plant in condition to function completely; whether it would pay to rehabilitate the plant in view of the cash offer for it made by the Puget Sound Power & Light Company; and an appraisal of the Ellensburg gas and water system. Figures compiled by the city council show that the gross receipts of the light department for the first five months of 1925 amounted to $45,284.89. Deduction of operating expenses, interest, etc., left a net earning of $15,127.11.

Municipal Plant Diesel Engine Unit Refused by Taxpayers

A temporary injunction has been issued through the courts restraining the city of Idaho Falls from purchasing a Diesel engine as an auxiliary unit to the municipal power plant. The injunction is the second step on the part of taxpayers in preventing the purchase, a bond of $1,500 having been furnished by them a week previous.

The action was brought by a committee of taxpayers on the ground that the officials of the city of Idaho Falls are placing the city in debt to an unnecessary extent by making the purchase; that the city has no adequate place for housing the engine, and that it would be necessary to spend about $15,000 in constructing a suitable engine house and paying for the installation of the auxiliary in addition to the initial cost, bringing the total up to approximately $92,000.

Two Salt Lake City Blocks Have New Whiteway Lighting

Salt Lake City's newest whiteway lighting system, on First South Street, covering two blocks between State and West Temple Streets, was placed in operation on the night of Sept. 16, thousands of citizens taking part in the celebration arranged for the occasion. The switch that turned on the lights was thrown by Mayor C. Clarence Neslen at eight o'clock.

Dancing and the awarding of novelties and prizes were the events of the evening. The street was closed to traffic, and hundreds danced in the street to the music of bands. Merchants on the street held open house.

The new lighting system consists of 28 standards (seven to the block on each side of the street), each with three General Electric Company form 20-Y inverted luminous arc lamps. Each lamp is 1,500 cp., making a total of 4,500 cp. to each standard. The standards, which are 25 ft. in height from the ground to the top lamp, and 19 ft. to the lower lamps, are of Union Metal Manufacturing Company pressed steel with cast iron bracket base.

This installation completes the third unit in the attempt to make Salt Lake City's business district the best lighted in the world.

View of new whiteway lighting system on First South Street, between State and West Temple Streets, Salt Lake City. The photograph was taken at eleven o'clock at night

Electric League Conference at Camp V Declared Most Representative of All

The fourth conference of electrical leagues, known as Camp Cooperation V, held at Association Island, Henderson Harbor, N. Y., Sept. 8-12, sponsored by the Society for Electrical Development, passed into history as the most successful of all these meetings, not only from point of attendance but in spirit shown, constructiveness of program and entertainment. The attendance taxed the island's capacity and is to be recorded as the most representative of the series of annual conferences in that sixty-six were represented out of a total of 123 leagues.

The business program was designed to give a cross-section of league activities throughout the United States and Canada, to treat of league problems of organization and operation, and finally to consider the details of specific league activities. The discussions following the various papers evidenced a considerable advance over previous conferences. Reports, papers, and condensed discussions are to be made available to the leagues as quickly as they can be edited and reproduced.

An attractive arrangement displayed to advantage the exhibits of the following leagues: California, Cleveland, Detroit, Hudson Valley, Niagara Frontier, Northern Illinois, Pittsburgh, Rhode Island, Rochester, Syracuse, and Toronto. Much interest was shown in these exhibits and in that of the Society.

Mr. Goodwin portrayed the possibilities of the Red Seal Plan and then presented the Red Seal Manual which is being produced for distribution through licensed leagues to their members, the aim being to sell the members, especially the contractors, and to get them in turn to sell the Red Seal Plan at every opportunity.

Quite as a surprise, George W. Austen, manager of the Electric Service League, Toronto, was presented with an illuminated resolution of the board of directors of the Society for Electrical Development, "In recognition and appreciation of his contribution to the electrical industry in conceiving and initiating the idea of the Red Seal Plan to assure adequate wiring."

The woman's point of view found expression on Thursday evening when Miss Katherine Fisher, director of Good Housekeeping Institute, presented her subject, "What Women Want to Know About Electricity." Further thoughts were contributed by Miss Nichols of New York, Miss Rischman of Buffalo, Miss Bell of Minneapolis, and Miss Smith of Rochester, who reported nineteen women as members of the Rochester League.

The League Council met prior to making its report to the conference. The conference elected the Council for the coming year.

At a meeting following its election the new council elected J. E. North, president of the Electrical League of Cleveland, chairman, and Earl E. Whitehorne, vice-chairman. Members of the League Council for the Western territory are as follows: John J. Cooper, Denver, Colo.; Harry J. Martin, Seattle, Wash.; R. M. Bleak, Salt Lake City, Utah; C. T. Hutchinson, San Francisco, Calif.; K. E. Van Kuran, Los Angeles, Calif., and James Lightbody, Vancouver, B. C.

Following each evening's business session the Island Volunteer Police Department took charge, staging a merry round of original entertainment with the talent recruited entirely from among the conferees. On Tuesday night "The Town Sociable" got everybody acquainted. On Wednesday and Thursday nights, respectively, "The Mock Trial" and "The Policemen's Ball" took place, in both of which all the entertainers performed impromptu. The social phase of the conference found its culmination in "Old Home Week in One Night," which was really the annual banquet in disguise.

Water Hammer Penstock Tests to Start Oct. 12

Oct. 12 has been set as the date for the beginning of the tests to determine the effect of water hammer on welded steel penstocks that are to be held at the plant of the A. O. Smith Corporation in Milwaukee, Wis. (Journal of Electricity, Aug. 15, 1925, p. 144.)

The test originally was planned for Sept. 28, but it was found necessary to postpone it to Oct. 12.

The test will be conducted for three days and will reproduce in severe form the action of water hammer. Gages operating with traveling tape will reproduce in graphic form the pressure action, and thus will be afforded the opportunity of studying this action. The whole mechanism is very pliable, and the number of impulses per minute as well as the pressure can be varied.

Committees from the American Society of Mechanical Engineers, the American Society of Civil Engineers, the American Society of Testing Materials, the American Institute of Electrical Engineers, and the American Institute of Mining and Metallurgical Engineers have been invited to attend the experiment. The test operation is to be turned over to the engineers present, and as extensive laboratory equipment will be provided it is believed an excellent opportunity will be afforded to study the effect of fatigue on the weld as well as on the original plate steel.

Seattle Company Seeks License for Chelan River Plant

Applications to develop power on many northwestern streams featured the Federal Power Commission activities recently. The most noteworthy of these was the application made to the commission by the Chelan Electric Company of Seattle, which applied for a license covering a project on Chelan River and Chelan Lake in Washington. It is proposed to construct a diversion and control dam in Chelan River, thereby giving Chelan Lake a reservoir capacity of 640,000 acre-ft. The project provides for two pipe lines 13 ft. in diameter and two miles long; five steel penstocks 10 ft. in diameter and 1,000 ft. long; a power house with five generator units. The primary power which thus will be made available is estimated at 65,000 hp. The secondary power will amount to 60,000 hp. The five turbines, however, will be capable of developing an aggregate of 125,000 hp.

In this connection recent press dispatches quote an announcement attributed to D. L. Huntington, president of The Washington Water Power Company, Spokane, to the effect that that company has entered into an agreement with the Great Northern Railway Company relative to the future acquisition of the power site owned by the Chelan Electric Company, a subsidiary of the railroad company, and of ultimate development of Lake Chelan power. This action would cause the postponement of the Kettle Falls project, according to the announcement. No date has been set for the commencement of the work on the project.

Further Development Planned at Price's Lake, Wash.

Application for permission to appropriate 60 sec.ft. of water from Price's Lake, tributary to the Lilliwaup River in Mason County, Wash., for power purposes, was filed with R. K. Tiffany, state supervisor of hydraulics, Sept. 18, by the Lilliwaup Power & Water Company of Seattle. The application calls for development of 1,000 hp. at a 220-ft. head. Construction is to begin by Sept. 1, 1927, and is to be completed by Sept. 1, 1928. Contemplated construction includes a diversion dam, wood stave pipe line, a hydroelectric plant and appurtenant works. Estimated cost is $75,000.

According to W. O. Stewart, secretary of the company, the purpose of this development is to utilize the drop between Price's Lake and the Lilliwaup River below the forks in conjunction with applications for a previous project recently filed by the same company (Journal of Electricity, Sept. 1, 1925, p. 184) in which it is intended to use the drop between the forks and Hood's Canal on the Lilliwaup River.

The Lilliwaup Land & Resort Company, which recently applied for permission to build a reservoir at Price's Lake (Journal of Electricity, Sept. 1, 1925, p. 184), on Sept. 17 filed two applications for water rights from the Lilliwaup River in the Hood's Canal country in Mason County and three reservoir applications in connection with a power project to cost approximately $800,000. Construction will begin, if the necessary permits are granted, on or before Jan. 1, 1928, and will be finished by Jan. 1, 1929.

Furniture Dealers Receive Range Catalogs and Data on Electric Range Sales.—At a recent meeting of the furniture dealers of San Francisco held in the Pacific Gas and Electric Company Building at 447 Sutter Street, the sales program of the Pacific Gas and Electric Company and the Great Western Power Company was explained. A set of range catalogs in a folder was presented to all of the dealers present with the compliments of the two power companies. The folder contained catalogs of the following ranges: L & H, Universal, Crawford, Hotpoint, Westinghouse and Standard. Following the meeting, those present adjourned to the office of the Great Western Power Company where they inspected the two electric kitchens on display as well as the range display of that company.

Walla Walla Rate Hearing Raises Valuation Question

Questioning the usefulness and value of certain pieces of property of the Pacific Power & Light Company, witnesses for the cities of Walla Walla, Yakima, and other Washington communities joining in the formal complaint against the rates of the company consumed most of the six-day hearing before the Washington Department of Public Works held recently at Walla Walla. Other evidence submitted by the complainants attacked the company's power contract with The Washington Water Power Company, Spokane, and the company's method of setting up its depreciation account. The principal contention of the complainants was that certain pieces of property were no longer useful in the public service, were over-valued, and should not be included in the rate base valuation, and that this rate base was higher therefor than should actually obtain.

Evidence introduced by the defendant company tended to show that the properties alleged useless by the complainants were useful, and that the company was not earning an exorbitant return on the rate base established by the department as of Dec. 31, 1919, plus additions less retirements. No evidence as to valuation was offered by the company, it being held that the department's valuation of 1919 was valid until changed by a complete re-valuation of all the properties by physical inventory, which the company had offered to undertake some months ago. This offer was made again at the hearing.

The department presented the results of its own investigation carried on during the past year by the department engineers and accountants. The rates of the company were not discussed at this hearing, and at the close, John C. Denny, director, stated that the dates for the rate portion of the hearing would be announced later. The cities were represented by Hugh M. Caldwell, attorney, Seattle, while John A. Laing, vice-president and general attorney of the Pacific Power & Light Company, Portland, represented the company.

Seeks to Develop Power on the Cowlitz River.—Permission to build a reservoir on the Cowlitz River in Lewis County for storage of 10,000 acre-ft. of water for power purposes in connection with development of the Big Bend unit of an $8,000,000 power project on the Cowlitz River (Journal of Electricity, Aug. 15, 1925, p. 147), is sought in an application filed with the state supervisor of hydraulics Sept. 18 by H. W. Crozier, of the Cowlitz Chehalis & Cascade Railway, Chehalis, Wash. Construction involved includes a concrete dam 45 ft. high, 150 ft. long on top and 75 ft. long on the bottom. The reservoir, which is to have an area of 1,000 acres when submerged, will cost approximately $50,000.

Open House Held During Jubilee Celebration.—The Universal Electric Company, electrical supply jobbers of San Francisco, held an informal open house for their customers and friends on Wednesday, Sept. 9, during the Diamond Jubilee celebration. Sandwiches and coffee were served to those who attended.

Los Angeles Applies for Permit on Colorado Near Needles

The City of Los Angeles has applied to the Federal Power Commission for a preliminary permit covering a project on the Colorado River in San Bernardino County, Calif., and Yuma and Mohave Counties, Ariz. The project is in the vicinity of Parker, Ariz., and Needles, Calif. The plan provides for the storage of some 600,000 acre-ft. in a reservoir near Parker where a head of 90 ft. may be obtained. The amount of primary power which will be made available is estimated at 108,000 hp.

Two other applications are of interest. The Mt. Shasta Power Corporation, which holds the preliminary permit covering a project on the Pit River near Redding, Calif., has made application for license. The preliminary permit was issued May 5, 1923. The primary power that will be made available under the corporation's plan of development will be 56,880 hp. It is planned, however, to install three 40,000-hp. units. A part of the power will be marketed by the corporation itself. The balance is intended for the Pacific Gas and Electric Company.

The Red River Lumber Company of Minneapolis has applied for a preliminary permit on Hat Creek near the Lassen National Forest, near Cossel, Calif.

Labor Contract for Kings River Tunnel Calls for $1,263,000

John de Luca, A. C. Dennis, and Floyd T. Huntington, were awarded the contract for the construction of the San Joaquin Light & Power Corporation's 19,400-ft. tunnel on its Kings River project, entailing a cost for labor alone of $1,263,000, it was announced recently by Harold K. Fox, chief construction engineer for the corporation.

Work is to be rushed on a three-shift basis in order to complete the project late next year. Over 300 men are to be employed on the job. The tunnel is to be over three and one-half miles in length, 12 ft. in cross-section, and is designed to carry 720 sec.ft. of water from the north fork of the Kings River to the Balch power house. To permit the employment of five crews of men on the project simultaneously, two side shafts will be sunk into the mountain to a depth of 300 ft. each, joining the line of the main tunnel at such distances.

Work on the 228-ft. arch type dam which is to divert the water into the tunnel will begin at the same time, preliminary work already having been started there. Concrete on the dam will be poured early next summer, it is estimated.

Business Conditions Improving in Intermountain Region

For the first time in four years business conditions in the Intermountain region justify a highly optimistic attitude, according to Salt Lake City electrical jobbers. On the basis of present indications, fall electrical business will be larger in volume than for any period since 1920. Agricultural conditions in Utah, Idaho and Wyoming and the mining situation in Utah are responsible for the optimistic outlook.

Commenting upon the situation, C. B. Hawley, vice-president and general manager of the Intermountain Electric Company, says:

"The Salt Lake City jobbing territory holds great promise for a large volume of business for the first time in four years. Agricultural conditions in the territory were never more promising. Crops are large and prices are high. The farmers in Utah and Idaho will enjoy prosperity this fall in a measure unequaled since the war. His prosperity will be reflected in increased activity in all lines of business. Our purchases are being made with the prospect of heavy fall and Christmas buying."

C. B. HAWLEY

The same attitude is held by J. A. Kahn, president of the Capital Electric Company. Mr. Kahn says:

"With bumper crops and high prices and with mining conditions on the up grade, this section of the country will enjoy marked prosperity this year for the first time since 1920. This not only applies to the electrical industry but to all other lines of business. The situation as regards copper, silver, zinc and lead mining, as well as agricultural products and livestock, warrants a highly optimistic outlook. The general prosperity of the region will have its effect upon electrical business throughout this territory."

J. A. KAHN

The same feeling of optimism pervades the entire electrical industry in the Intermountain region.

League Has Float in Diamond Jubilee Parade.—The San Francisco Electrical Development League had a very interesting float in the California Diamond Jubilee parade which was held Wednesday, Sept. 9. The float portrayed the generation of electrical energy, beginning with the snow-capped mountain and stream flowing from its side to the power house near the base. The float was towed by an electric truck which carried the emblem of the League.

Buck's Creek Plant to Become Property of Great Western

Authority has been granted by the California Railroad Commission to the Feather River Power Company, San Francisco, to issue and sell at not less than 90 per cent of face value, plus accrued interest, $5,500,000 of first mortgage six per cent serial gold bonds, and $2,100,000 of its capital stock. The proceeds derived from such sale will be used to finance the construction of the company's Buck's Creek hydroelectric power project on the North Fork of the Feather River in Plumas County, Calif. (Journal of Electricity, May 1, 1925, p. 334.)

The Feather River Power Company also is authorized by the commission to enter into an agreement with the Great Western Power Company of California, whereby it will sell the Buck's Creek power plant and appurtenances to that company under a contract covering a period of thirty-five years. During this period the power produced at the plant is to be sold to the Great Western Power Company at the rate of four mills per kw-hr. At the end of that time the plant, which will have an installed capacity of 60,000 hp., will become the property of the Great Western company.

The property and water rights owned by the Feather River company on the Middle Fork of the Feather River have been sold to the Western States Gas & Electric Company, Stockton, Calif., a Byllesby holding. It is reported that that company will start construction on the Bean Creek plant of the proposed development next spring.

Eight Applications Filed for Lewis River Water

Eight water applications seeking use of 1,775 sec.ft. of water on the Lewis River and tributaries in Skamania County, Washington, to develop a total of 90,350, continuous horsepower for power, mining and manufacturing purposes, were filed with R. K. Tiffany, state supervisor of hydraulics Sept. 14 by H. L. Gilbert, Portland, Ore.

Cost of the power development phase of the project, exclusive of four applications for permission to construct reservoirs in connection with the project, is estimated at $9,055,000. Cost of the four reservoirs, which will store a total of 129,000 acre-ft. of water, is estimated at $2,900,000, making the estimated cost of the entire project $11,955,000.

Construction details in connection with the project are meager, a notation on each application blank stating that further study and knowledge of each site was desired before deciding upon the type of dams and the dimensions of the various canals to be built. Dams and canals of the most suitable type and of first class construction are to be built, according to the applications.

The twelve applications were filed in person by H. L. Gilbert, a Portland engineer, who, however, did not elaborate upon the details contained in the various applications.

The Northwestern Electric Company of Portland already has commenced development of a power project on the Lewis River near Yale, Wash., near the location of the various water rights sought by Gilbert.

Charles A. Magrath Named as Ontario Hydro Head

Charles A. Magrath, chairman of the Canadian Section of the International Joint Commission, has been appointed by the Ontario government chairman of the Ontario Hydroelectric Power Commission, succeeding the late Sir Adam Beck.

Mr. Magrath has taken an active part in public affairs for many year. He has been a member of the International Joint Commission since 1911, and since 1922 a member of the federal advisory fuel committee. In 1913 he was chairman of a commission created by the province of Ontario to report upon a comprehensive system of highways, and from 1917 to 1920 he was fuel controller for Canada. During the war he was a member of the Canadian War Trade Board. He is a former president of the Dominion Land Surveyors' Association of Canada and a prominent member of the Engineering Institute of that country. During his early life he spent many years in survey work in western Canada.

Edison Company Asks Permit to Increase Service Deposit

Application has been made to the California Railroad Commission by the Southern California Edison Company, Los Angeles, for permission to increase its service deposit for residence or domestic service from $2.50 to $3.50.

The application states that the company's experience has shown that the present deposit of $2.50 for each service is insufficient to guarantee payment of bills by certain classes of consumers, particularly those of a transient nature, and that the increasing of the service deposit will be a direct benefit to permanent consumers in that uncollectible accounts from transient consumers will be reduced materially.

Three Electrical Organizations to Occupy Same Office

The Electric Club of Los Angeles has announced the removal of its executive offices to 610 Cotton Exchange Building, Third and Main Streets.

The California Electrical Bureau and the California Electragists, Southern Division, also will occupy these offices. It is the belief of the three organizations that the association and cooperation afforded by this plan will be of mutual benefit as well as of service to the industry.

Technical Section Reports to Be in Oct. 15 Issue

The first meetings of the Technical Section of the Pacific Coast Electrical Assocation for the fiscal year were held in the new building of the Los Angeles Gas and Electric Corporation Sept. 23-25. A full report of the proceedings of this series of meetings will be given in the Oct. 15 issue of the Journal of Electricity.

The next series of sessions will be held in San Francisco about the middle of January, 1926. It will be worth while to be there.

Mountain States Company Moves Headquarters to Tacoma

In order to be located more centrally with respect to the widely separated divisions of the company in Oregon, Washington, Idaho, Montana and Wyoming, the Mountain States Power Company, formerly of Albany, Ore., has moved its headquarters to Tacoma, Wash. The new general offices are located in the building occupied by the Tacoma Gas & Fuel Company, which in common with the Mountain States Power Company is managed by the Byllesby Engineering & Management Corporation, Chicago.

Simultaneously with the announcement of this move, which was effective as of Sept. 1, comes the announcement that C. M. Brewer, vice-president and general manager of the Mountain States company, will assume that position with the Tacoma Gas & Fuel Company, succeeding D. J. Young, who had managed the Tacoma property for some years. Mr. Young will remain with the Byllesby Engineering & Management Corporation in consulting capacity for all gas plants under its supervision, and for the present will continue to make his headquarters in Tacoma.

Other changes in organization effective at this time include the promotion of W. L. Fitzpatrick to become general auditor for all divisions of the company, succeeding N. H. Buckstaff, who has been transferred to the Northern States Power Company.

Steam Power Plant to Be Erected at New Braunfels, Texas

Announcement has been made by the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., that it has been awarded a contract for the installation of a complete generating unit of 45,000 hp. in the new steam power plant to be erected at New Braunfels, Texas, for the Coma Power Company. This company is a subsidiary of the San Antonio Public Service Company, which is an American Light & Traction Company holding.

Included in the equipment is a 45,000-hp. turbine, a 37,500-sq.ft. condenser, and a 30,000-kw. generator. The cost of the plant is estimated at $3,000,000 and is to be built within a year.

Refrigerator Company Acquires Manufacturing Facilities

Announcement has been made that the Servel Corporation of New York, manufacturer of electric refrigerators, has acquired all of the voting stock of the Hercules Corporation.

For the last three years the latter company has been producing, in addition to farm engines, vehicles and equipment, and commercial truck bodies, Servel electric refrigeration units, ice cream cabinets and refrigerators. Its present capacity is estimated at 50,000 Servel domestic refrigerating machines per annum. Installation of additional machinery and equipment is now under way, and the capacity during 1926 will be approximately 100,000 per annum.

The acquisition of the Hercules Corporation, which owns plants at Evansville, Ind., Carteret, N. J., and Newburgh, N. Y., is believed to be the initial move on the part of the Servel Corporation to acquire its own facilities for the manufacture of its electric refrigerators.

News of the Electragists

Los Angeles Electragists Resume Activities and Plan Work

After a suspension of activities during the summer months the Los Angeles Electragists have resumed their regular meetings which are held Tuesday noons and Thursdays nights. H. H. Walker, president, who recently returned to the city after spending six months traveling due to ill health, was welcomed at a recent meeting.

Tentative plans for the coming year also were outlined at this time. It was decided to continue the neighborhood meetings, with occasional general meetings. Frank McGinley, Harbor Electrical Company, Wilmington, Calif., reported on a plan of the Builders Exchange of San Pedro to establish a model home for publicity purposes. This home will be wired according to the Red Seal specifications as an example of an adequately wired home for prospective builders.

Walter Norton of Norton & Norton, Los Angeles, is making an extensive trip through Eastern and Canadian cities. While in the East Mr. Norton attended the Electragist convention at West Baden.

Kendig Brothers of Burbank, Calif., recently have opened a branch store at Lankershim, Calif.

Barnes Brothers of Pasadena, Calif., recently have moved into a new store, which is in a much better location and is larger than their old one.

Sherman Smith of the Huemphreus-Smith Electric Company, Santa Barbara, Calif., is in the East on an extensive business trip.

Sam Fingerhut of the Acme Electric Company, Bakersfield, Calif., was in Los Angeles on business recently.

Fred L. Edwards of the Independent Electric Company, San Diego, was recently in Los Angeles on a business trip.

W. M. Boyce of Mayer & Boyce, San Diego, made a trip to Los Angeles recently on business.

Southern Division of California Electragists Meets Oct. 16-17

General plans have been outlined for the program to be presented at the quarterly convention of the Southern Division of the California Electragists to be held at the Lebec Inn, Lebec, Calif., Oct. 16-17.

There will be a members' meeting Friday evening. At this time each member will be given an opportunity to express himself on the various questions which are brought up. Estimating will be one of the principal problems discussed at this meeting.

Saturday morning will be devoted to a report of the merchandising committee and to kindred subjects. The members have taken a great deal of interest in the work of the merchandising committee, and its report promises to be one of the most important subjects before the convention.

The general meeting will be held Saturday afternoon. A paper entitled, "Financial and Business Problems of the Contractor-Dealer" will be presented at this time. An interesting program of entertainment has been arranged for both men and women in attendance at the convention.

Follow the leaders—and arrive at Lebec in time for the meeting Oct. 16

Clyde L. Chamblin, California Electrical Construction Company, San Francisco, was one of the members of the California Electragists who attended the twenty-fifth annual convention of the Association of Electragists, International, which was held at West Baden Springs, Ind., Sept. 23-25.

P. D. Howse, Electrical Products Corporation, **and H. B. Woodhill,** Woodhill-Patterson Company, both of Los Angeles, recently returned to that city after an extended visit to Canada and New York City.

Lee C. Baltzelle, of the J. J. Farley Company, Fullerton, who has been very active in the Southern Division of the California Electragists. Mr. Baltzelle has given liberally of his time in its behalf, especially in connection with the presentation of the estimating system of the Association of Electragists, International, as outlined in the July 15 issue of the Journal of Electricity (p. 62).

J. F. Zwiener, San Diego electragist, was in Los Angeles recently on business.

S. F. Jones of Winder & Jones, Covina, Calif., was a recent business visitor to Los Angeles.

C. J. Geisbush, secretary of the California Electragists, Southern Division, recently made a trip to Lebec, Calif., to make arrangements for the Southern Division's quarterly convention which will be held there Oct. 16-17.

The Yuba-Sutter County Electrical Development Association recently reorganized, changing its name to the **Superior California Electric Development League.**

M. E. Ryan of Redwood City recently has become affiliated with the California Electragists.

A. L. Woods, formerly associated with the American Electric Company at Torrance, Calif., recently purchased the interests of the other members of the firm and now is operating as the Woods Electric Company in a new location at 1213 Post Avenue, Torrance.

L. C. Hart Electric Company will soon move into the new store building now being constructed by Mr. Hart in Moneta, Calif., that will provide room for a more attractive display of appliances.

R. O. Mullinger, formerly with **W. C. Bailess Company, and D. E. Annand,** formerly in the sales department of the Sierra Electric Company, Inc., recently have organized The Reliance Electric Service Company, Los Angeles. The company will specialize in the repair and serving of electrical appliances. A special feature of the establishment will be an intercommunicating telephone service department.

Book Reviews

LIGHTING FIXTURES AND LIGHTING EFFECTS

By M. LUCKIESH, director, Lighting Research Laboratory, National Lamp Works of General Electric Company. 330 pages, illustrated, $4.00. McGraw-Hill Book Company, Inc.

For many years those actively engaged in the design and manufacture of lighting fixtures and equipment have been handicapped greatly as a result of insufficient scientific information relative to the many complexities with which they are confronted daily. Indeed, their questions often are answered indiscriminately, and as a result many weird and painful conceptions of correct lighting have been thrust upon an unsuspecting laity. This is readily understood when one remembers that the average designer's bookshelves are crammed with volumes dealing solely with creations of bygone eras and a pitifully small showing of reasonably scientific and applicable data suitable to today's requirements.

It is with much satisfaction that Mr. Luckiesh's book will be welcomed by the profession, as well as by the host of other supernumeraries associated with the art. It should prove an invaluable addition to their work. The subject, associated with the lighting art, its history, and of most importance, its proper application, is treated throughout Mr. Luckiesh's work in so systematic and constructive a manner as to prove immensely interesting and at the same time easily digested.

As an introduction, the author treats of the potentiality of light, disclosing its primitive sources, its value in illumination, its prime signficance in any medium of decorative or useful art, and presents an outlook upon the future possibilities of this powerful factor of expression.

In systematic and constructive order follow chapters devoted to the influence of light upon our natures, the imprints of usage, the physical and esthetic basis of light and color; in fact, all the elemental phases that enter into proper lighting. The chapter devoted to the principles of lighting equipment is particularly useful, as it illustrates and explains methods employed to accomplish various means of light transmission and reflection. This is valuable in solving many misunderstood problems.

The chapters devoted to the history of lighting, and the illustrations accompanying the various period styles, are highly commendable, inasmuch as this treatise is a digest of the world's progress in lighting equipment from the earliest ages down to our latest approved styles.

Mr. Luckiesh lays particular emphasis upon the fact that today designers are adhering slavishly to reproduction of examples of bygone eras, and merely are replacing candles (the only former medium of light) with electric sockets. He says that they do not use suitable diffusing media and are prone not to pay proper attention to the advantages at their command. This is indeed true, for we have but to look at the many incongruities glaring at us in our homes and public places to realize only too well the efficacy of Mr. Luckiesh's statements.

Mr. Luckiesh cites as an illustration the old schoolhouse. It had dark woodwork, for maintenance was a first consideration. It had improper ventilation. It was lighted by means of lamps glaringly exposed and intensified by porcelain diffusing plates. The surroundings were sordid and depressing. As a consequence, the instincts of the children rebelled, their eyes were affected, their morale lessened. Today the modern schoolhouse with its cheerful and light-colored walls, its proper diffused light, scientifically studied surroundings, offers a vivid contrast.

As a whole the book is a decidedly useful and much needed text and should prove of utmost value to those who believe in the scientific and correct development of their craft. C.J.F.

Meetings

Electrical Supply Jobbers Hold Enthusiastic Meeting

The quarterly meeting of the Pacific Division of the Electrical Supply Jobbers' Association, held at the Hotel Del Monte, Del Monte, Calif., Sept. 24-26, was an enthusiastic one, and much interest was evinced by the delegates in the different matters brought up at the sessions.

A number of important problems was discussed, and a resume of those discussions and the conclusions arrived at, together with a report of the other events at the convention, will be published in the Oct. 15 issue of the Journal of Electricity.

COMING EVENTS

Technical National Section, N.E.L.A.,—
Group Meetings:
Detroit, Mich., Book Cadillac Hotel
Oct. 6-9, 1925

California Electragists, Southern Division—
Quarterly Meeting—Lebec Inn, Lebec, Calif.
Oct. 16-17, 1925

National Association of Railroad and Utilities Commissioners—
Annual Convention—Washington, D. C.
Oct. 13-16, 1925
Kansas City, Baltimore Hotel
Feb. 9-12, 1926

Electrical Folks of Salt Lake Hold Annual Outing.—The annual outing of the members of the electrical industry of Salt Lake City and surrounding territory was held at Lagoon, a summer resort 18 miles north of Salt Lake City, on Sept. 1. A large number of people were in attendance, and a lively program of athletic events was conducted during the afternoon, followed by a dinner and dancing in the evening. Electrical prizes, contributed by various electrical concerns, were awarded the winners of the various contests.

Technical National Section to Hold Two Group Meetings

Two group meetings of the Technical National Section, N.E.L.A., will be held this year, according to announcement from New York. These two meetings will be of importance to technical men in all branches of the electric service industry. It is to be hoped that the cooperation of Pacific Coast companies in sending representatives to these sessions will be at least as good as it was last year. Contact between the national technical organization and that of the Coast division is an economic desirability.

The first of these sessions will be held at the Book Cadillac Hotel in Detroit Oct. 6-9. The second series of meetings will be held at the Baltimore Hotel in Kansas City, Feb. 9-12, 1926. Special note should be taken of the fact that Detroit operates on Eastern Standard time while most of the railroads thereabouts operate on Central Standard time. All Detroit meetings will be according to Eastern Standard time.

The chairman of the Technical Section is C. F. Hirshfield, The Detroit Edison Company, Detroit, and the chairmen of the various committees are as follows: Accident prevention—C. B. Scott, Bureau of Safety, Chicago; electrical apparatus—E. C. Stone, Duquesne Light Company, Pittsburgh; hydraulic power—R. L. Thomas, Pennsylvania Water & Power Company, Baltimore; inductive co-ordination—H. S. Phelps, The Philadelphia Electric Company, Philadelphia; meter—A. G. Turnbull, Commonwealth Edison Company, Chicago; overhead systems—H. C. Sutton, The United Gas Improvement Company, Philadelphia; prime movers—A. D. Bailey, Commonwealth Edison Company, Chicago; underground systems—C. H. Shaw, The New York Edison Company, New York.

New Officers Elected by Seattle Electric Club

At a meeting of the Electric Club of Seattle held Aug. 24, the first since the summer vacation, David M. Roderick, district manager of the Hoover Suction Sweeper Company, was elected president to succeed Harry J. Martin of the National Carbon Company, who held that position for the past two years. The new president was installed in office at the second meeting of the organization Aug. 31.

Other officers named to assist the new president during the ensuing year follow: T. S. Wood, vice-president; E. A. Irons, Westinghouse Lamp Company, treasurer; P. L. Hoadley, representing Stanley & Patterson, re-elected secretary. The directors are: Harry J. Martin, permanent chairman; G. C. Burke, City Electric Company; R. M. Cole, Fobes Supply Company; A. E. Griswold, A. G. Manufacturing Company; R. E. Thatcher, Puget Sound Power & Light Company; George T. Thirsk, electrical engineer.

Railroad and Utilities Commissioners to Convene.—The annual convention of the National Association of Railroad and Utilities Commissioners will be held at Washington, D. C., Oct. 13-16. Correspondence with regard to the meeting should be addressed to Janes B. Walker, 270 Madison Avenue, New York City.

Personals

C. A. Semrad, vice-president and general commercial manager, Public Service Company of Colorado, Denver, who was elected president of the Rocky Mountain Division, N.E.L.A., at its 1924 convention, and who has been the acting president since the departure of Norman Read, the former president, received official confirmation of his elec-

C. A. SEMRAD

tion to that office at the convention held at Glenwood Springs, Colo., Sept. 14-17. His term will expire June 30, 1926. Mr. Semrad is well known in the electrical industry, particularly in the West, having been closely connected with it for a number of years. Graduating from the University of Wisconsin in 1908 as an electrical engineer, he became instructor in hydraulics and water power there. Later he joined the Union Light & Power Company of St. Louis, Mo., leaving to become cadet engineer with the Northern Colorado Power Company. In 1914 he became general manager of the Cheyenne Light, Fuel & Power Company, a Western Light & Power Company holding, and four years later was made general manager of the latter organization. Upon the merger of that company with the Denver Gas & Electric Light Company in 1923 Mr. Semrad was made directing head of the western division of the Public Service Company of Colorado, the newly formed company. He has been prominent in the organizational affairs of the industry, taking an active part in the N.E.L.A. as a member of the Rocky Mountain Division. In the recent national Home Lighting Campaign he served as vice-chairman of the regional committee and as state chairman for Colorado.

Ruth Creveling, research librarian, and **Nell Molloy,** secretary to the general manager, San Diego Consolidated Gas & Electric Company, were recent visitors to San Francisco.

A. O. Marston has assumed the duties of secretary of the Los Angeles Electric Club, the position formerly occupied by **W. A. Knost.**

E. J. Adams, representing the United Electric Company, Canton, Ohio, was a recent visitor in San Francisco.

B. F. DeLanty has been appointed general manager of the Municipal Light and Power Department of Pasadena, Calif., succeeding **C. W. Koiner,** former city manager, who also served as head of the city light and power utility. Mr. DeLanty has been connected with the department for eighteen years.

C. M. Teats, for the last four years representative of Moe-Bridges Company in Los Angeles, has been made manager of that company's newly opened branch office in that city.

James F. Pollard, general manager of the Coast Valleys Gas & Electric Company, Salinas, Calif., and **H. K. Griffin,** superintendent of the commercial department of the Western States Gas & Electric Company, Stockton, were in San Francisco recently to attend the organization meeting of the Industrial Lighting Committee. Both were appointed vice-chairmen of the committee in charge of activities in their respective fields.

R. E. Fisher, vice-president in charge of public relations and sales, Pacific Gas and Electric Company, San Francisco, with Mrs. Fisher left Sept. 22 for an extended trip through eastern centers. He expects to spend some time in Chicago, New York, Boston and Washington where he will make a special investigation of the progress made in domestic refrigeration and prospective new industries seeking locations on the Pacific Coast. He also will attend the meetings of the American Gas Association, Society for Electrical Development and the National Electric Light Association.

J. W. Wrenn, manager of the Appliance Sales Department of the Great Western Power Company, San Francisco, recently addressed the Sciots at a luncheon, choosing as his subject "The Most Important Application of Electricity in the Home."

T. F. McDonough, Los Angeles district representative, Benjamin Electric Manufacturing Company, recently became a member of The Electric Club of that city.

D. M. Patterson, formerly with the Southern California Telephone Company at Alhambra, Calif., has been appointed assistant to A. R. Whisler, district agent of the San Diego Consolidated Gas & Electric Company at Oceanside, Calif.

H. T. Plumb, special engineer for the General Electric Company with headquarters in Salt Lake City, recently spoke before the weekly luncheon of the Engineering Council of Utah. His address dealt with reminiscences of his recent trip which took him through the East and to Schenectady, N. Y., the headquarters of the General Electric Company.

R. A. Balzari, manager of the Industrial Division, Westinghouse Electric & Manufacturing Company, San Francisco, was among the delegates attending the Pacific Coast convention of the American Institute of Electrical Engineers at Seattle.

A. M. Frost, commercial manager, San Joaquin Light & Power Corporation, was a recent visitor in San Francisco. As chairman of the Pacific Geographic Division of the Industrial Lighting Committee, National Electric Light Association, he discussed its activities with **Clark Baker,** chairman of the lighting bureau committee of the Pacific Coast Electrical Association.

W. W. LaBarr is in charge of the branch sales office newly opened in Los Angeles by The Packard Electric Company, Warren, Ohio.

H. E. Posz, F. A. Huth, C. O. Knox, and **C. A. Schrader** have been added to the sales force of the Moe-Bridges Company, covering, respectively, the territories of Seattle, Portland, Fresno and Sacramento. E. Earl Ingalls will cover the San Francisco territory.

C. D. Slaughter, manager of Allied Industries, Inc., San Francisco, is making an extensive trip to the Eastern coast where he will visit all the factories represented in the Western states by his firm.

A. E. Griswold, president of the A-G Manufacturing Company, Seattle, was a recent visitor in California, motoring through the state as far south as San Diego.

L. J. Bergman, for many years connected with the Pass & Seymour Company of Syracuse, recently arrived in Los Angeles to represent his company in the southern California territory.

Carl Wiggins, superintendent of electric production, San Diego Consolidated Gas & Electric Company, San Diego, Calif., motored to St. Paul, Minn., to attend the A.I.E.E. national convention held there.

W. D. Johnston has been appointed general manager of the Wyoming division of the Mountain States Power Company, the Byllesby holding which took over the Natrona Power Company at Casper, Wyo., and its smaller subsidiaries. His electrical experience dates back to 1909 when he became associated with the Nunn interests in the operation of the Telluride Power Company of Utah. Mr. Johnston was awarded a scholarship in 1912 by the

W. D. JOHNSTON

Telluride association, the educational foundation established by L. L. Nunn in connection with Cornell University, and in 1917 graduated with the degrees of A.B. and M.E. For three years following his graduation he was designing and power engineer for the Bell Telephone Company of Pennsylvania, and since 1920 has been general superintendent of the Natrona Power Company at Casper, Wyo., a Nunn subsidiary, under the direction of E. P. Bacon whom he succeeded when the company was sold to the Byllesby interest and Mr. Bacon formed another company. Mr. Johnston is one of the youngest utility company executives in the Rocky Mountain region.

W. E. Martin, manager of the marine sales division, Westinghouse Electric & Manufacturing Company, San Francisco, lately returned from a six-week trip through the Eastern states.

Jacob Bunn, president, Sangamo Electric Company, Springfield, Ill., and **R. G. Lanphier,** vice-president and general manager of the same company, accompanied by A. D. Mackie, vice-president, Illinois Power Company, Springfield, were recent visitors in San Francisco enroute to Los Angeles and Mexico City.

W. S. Dunlap, formerly associated with the Southern California Edison Company and the Great Western Power Company, has joined the sales force of the Majestic Electric Appliance Company, Inc., San Francisco, with headquarters in Minneapolis.

W. A. Cyr, former editor of "Glow" and its successor, the "News-Meter", for the San Diego Consolidated Gas & Electric Company, has joined the staff of the Journal of Electricity to succeed J. W. Otterson, associate editor. In the three years he has been connected with the electrical industry, Mr. Cyr has been identified with the San Diego utility, editing the company publication. He has been an active worker in the San Diego Electric Club as chairman of its program committee and member of its executive committee. The publicity for the 1924 convention of the Pacific Coast Electrical Association was under his direction. Prior to entering the electrical industry Mr. Cyr had a varied publising career, which began during the war when he edited the official paper of the 16th Division, "Trench and Taps". Upon his discharge from the army he became connected with the Community Motion Picture Company as assistant director

W. A. CYR

and later in charge of its Los Angeles office. Later he took on the editorship of a country weekly, "The Parlier Progress", adding shortly afterward the editorship of the "Alta Advocate" of Dinuba, Calif. Returning to San Diego, Mr. Cyr took an editorial position on the staff of the San Diego Union and Tribune, which he held until joining the San Diego Consolidated Gas & Electric Company. During the three years he was connected with the utility he has acted as San Diego correspondent for the Journal of Electricity. At the time of the recent San Francisco convention of the N.E.L.A. he was one of the assistant editors of the "Convention Daily".

J. Allan Smith, Jr., formerly with the washing machine department of the Pacific States Electric Company, has become a member of the sales force of the Majestic Electric Appliance Company, Inc., San Francisco. He has established headquarters at Dallas, Texas.

Paul R. Prietsch, assistant to **Ray W. Murphy,** Pacific Coast district manager for the Westinghouse Lamp Company, spent ten days in Los Angeles during September making a survey of the Los Angeles territory in collaboration with **O. E. Thompson,** Los Angeles branch manager for the lamp company.

H. G. Glass, formerly western representative of The Hoover Company, North Canton, Ohio, has been transferred to the position of Western executive sales manager. His territory covers all of the company offices west of Indiana.

George M. Rankin, field representative for the California Electrical Bureau for the San Joaquin and Sacramento Valleys, was a visitor to San Francisco recently in connection with the launching of the Industrial Lighting campaign.

P. M. Parry, commercial manager of the Utah Power & Light Company, Salt Lake City, attended the recent N.E.L.A. Rocky Mountain Division convention at Glenwood Springs, Colo.

William Baurhyte, president, Los Angeles Gas & Electric Corporation, and president, Pacific Coast Electrical Association, left Los Angeles Sept. 20 for a trip East. While away he will attend the American Gas Association convention and also the meeting of the Executive Committee of the N.E.L.A. to be held in Chicago Oct. 26.

R. P. Waite, formerly with the Texas Light & Power Company, Dallas, has resigned to accept the position of chief engineer of the property department of the Atlantic Oil Producing Company of that city, a subsidiary of the Atlantic Refining Company of Philadelphia.

B. A. Graham, formerly the Chicago representative of the Chicago Flexible Shaft Company, manufacturers of the Sunbeam iron, has been transferred to San Francisco to act as that company's California representative.

J. R. Cravath, consulting illuminating engineer of San Francisco and chairman of the San Francisco Bay Cities Chapter of the Illuminating Engineering Society, is now in the East. While there he attended the nineteenth annual convention of the Illuminating Engineering Society which was held in Detroit Sept. 15-18.

T. M. Simpson, formerly with the Great Western Radio Corporation is now associated with the Great Western Power Company at San Francisco.

W. H. Colman, district manager of the merchandise department of the General Electric Company, with headquarters in Chicago, was a recent visitor in Denver. **L. J. Johnson,** district representative of the same company, was also a visitor in Denver.

C. D. Russell, for a number of years in the sales department of the Pacific States Electric Company, Los Angeles, has resigned recently to accept the position of educational director of the Broadway Department Store of that city.

W. C. Sadler, engineer on the Cushman power project of the city of Tacoma, Wash., has resigned to accept a position as assistant professor in the School of Railroad Engineering, University of Michigan, Ann Arbor, Mich.

W. J. Dennis, for the past year assistant to the general manager of the Northwestern Electric Company, Portland, recently was appointed assistant general manager of the company. Mr. Dennis was born in Houston, Texas, in 1881, and received the major portion of his education in the public schools of that city. At the age of twenty-one he went to Portland where he became identified with the Ames, Harris & Neville Company, manufacturers of burlap and cotton bags, later rising to be plant superintendent. In 1912 he made his entry into the public utility field in the sales department of the Portland Railway, Light & Power Company, now the Portland Electric Power Company,

W. J. DENNIS

remaining about a year. When the Northwestern Electric Company commenced operations in the city in 1913 Mr. Dennis joined the sales department of that company, remaining in this work until February, 1924, when he was made assistant to the general manager.

A. G. Wishon, vice-president and managing director, San Joaquin Light & Power Corporation, Fresno, recently visited San Francisco.

B. L. Parker, for the past seven years associated with the sales department of the Western Electric Company, Omaha, is now a salesman for the Majestic Electric Appliance Company, Inc., in that city.

G. L. Stannard, formerly with the Scheeline Manufacturing Company, San Francisco, has resigned to become Western manager of the merchandising division of the Federal Telegraph Company with headquarters in San Francisco.

Obituary

W. E. Dunn, one of the pioneers in the electrical development of southern California, died Aug. 22 at the age of sixty-four. He was born in Michigan and went to southern California about thirty-five years ago. At the time of his death he was a director of the Southern California Edison Company, vice-president of the Los Angeles Railway Company, and was interested in a large number of other enterprises.

TRADE NOTES

Aladdin Manufacturing Company, Muncie, Ind., recently has issued catalog No. 25, which has twenty pages devoted to descriptions and illustrations of every type of lamp manufactured by the company.

The Autocall Company, Shelby, Ohio, has issued a descriptive and illustrated booklet of the Autocall line of signaling equipment. The booklet describes the paging system, fire alarm systems, local supervisory systems, fire bells, fire boxes, relays and control panels of the equipment.

Charles Cory & Son., Inc., New York City, has issued recently bulletin No. 201-29-A, which gives descriptions and sizes of its seamless metal hose.

The Schwerin Electrical Appliance Corporation, San Francisco, is erecting a factory in Oakland, Calif., that is expected to be in operation in about ninety days. This company manufactures Schwerin pressed glass flush switch, receptacle and convenience outlet plates.

W. W. Kirk, who represents the Delta-Star Electric Company and the Niagara Electric Improvement Corporation on the Pacific Coast, has appointed **N. W. Paterson** his agent for northern California. A stock of Delta-Star material is to be kept in San Francisco as well as in Los Angeles.

Moe-Bridges Company, Milwaukee, Wis., has announced the opening of a factory branch at 1026 Wall Street, Los Angeles, in charge of C. M. Teats, who has been the company's representative in that territory for the last four years. This branch, the company believes, will enable it to render better service to its dealers in southern California, Arizona and New Mexico. B. J. Wildman, Pacific Coast manager, also has announced that **H. E. Posz** has been placed in the Seattle territory, **F. A. Huth** in Portland, **C. O. Knox** in Fresno, and **C. A. Schrader** in Sacramento. **E. Earl Ingalls** will cover the San Francisco territory.

C. H. Babcock Company, 768 Mission Street, San Francisco, has moved its office to its warehouse address, 135 Bluxome Street, that city.

Sangamo Electric Company, Springfield, Ill., recently has moved its San Francisco office and warehouse to 1061 Howard Street, that city.

Irvington Varnish & Insulator Company, Irvington, N. J., has announced the appointment of **Charles E. Garneau** as sales manager.

The Packard Electric Company, Warren, Ohio, has established a branch sales office in the Chamber of Commerce Building, 1151 South Broadway, Los Angeles, in charge of W. W. LaBarr.

Wappat Gear Works, Pittsburgh, Pa., has placed on the market recently a new portable electrically driven lock mortiser to be known as the Alta lock mortiser, which it is claimed cuts the time for mortising on doors and windows to 1/30 of the time previously required. With this motor-driven mortiser the ordinary mortise can be cut in one minute.

Square D Company, Detroit, has brought out a new motor starting switch for use with time limit protective cutouts. The switch can be used with motors of 3 hp. and below on 110 volts and with motors rated above 3 hp. up to and including 5 hp. on 220 volts. The switch is made in a very compact form.

Sangamo Electric Company, Springfield, Ill., has developed a distant dial which it claims operates on alternating current, thus eliminating the need for batteries.

The Myers Radio and Electric Shop has established a store at 12th and Stout Streets, Denver. The business will be confined to sale and repair of radio and electrical equipment.

The R. & R. Electric Company was opened recently at 812 Valencia Street, Los Angeles. The firm will specialize in the design and manufacture of distinctive lighting fixtures. The members of the firm are R. E. Rogers, formerly sales manager of the Skelton-Wise Electric Fixture Manufacturing Company, and G. E. Ramey, formerly of the sales department of Solar Lighting Fixture Company.

The Electric Heating & Manufacturing Company, Seattle, Wash., manufacturers of Apfel's 100 per cent system of electric heating, announces the removal of its factory to its own recently completed plant at Sixth Avenue North and Harrison Street. The building, a concrete structure, was built especially for the company and is peculiarly adapted to the uses to which it will be put.

Curtis Lighting, Inc., Chicago, is introducing four new X-Ray reflectors known as Jack No. 400, Jill No. 410, King No. 500 and Queen No. 510. The first two are designed to accept 100 or 150-Watt Mazda "C" lamps, and the other two for 200-watt Mazda "C" lamps. A special shade-holder is supplied with each of these reflectors at no additional cost. In an announcement relative to this company in the Aug. 15 issue of the Journal, p. 156, its reflectors Jove No. 600 and Jupiter No. 610 were referred to as having been developed recently. This statement was made in error, as these reflectors have been on the market for the past fourteen years.

H. J. Gute & Company, San Francisco, have taken the agency for the Aladdin line of low-priced lamps. The line contains numerous styles, including desk, boudoir, table and flexible lamps, as well as metal-stand silk-shade floor lamps. They also are acting as agents for the Getz washing machines. The concern also represents the **Frank E. Wolcott Manufacturing Company,** Hartford, Conn., which recently has developed a $10 waffle iron, full size, a toy electric flat iron weighing less than 1 lb., and a 4-piece hairdressing set composed of deep waver, drying comb and curling iron.

Utica Products, Inc., Utica, N. Y., has put on the market a 600-watt portable electric furnace, which retails on the Pacific Coast for $12 and is claimed to be very efficient. One feature to which particular attention is invited is that the furnace is finished in Duco everlasting finish and, on account of the cool sides and bottom of the heater, may be painted.

Hynes & Cox Electric Corporation, Albany, N. Y., recently has developed a new electric pipe heater, which it is claimed can be mounted in any position on any size pipe. The illustrated literature fully describes the features of this device.

At first glance it would appear that the genial gentleman here depicted would have to do some "tall" explaining. In order to dispel any suspicion of scandal, we hasten to state that the photograph was taken in the studio of J. U. Berry, display manager of the Valley Electrical Supply Company, Fresno, and that the plump person in the foreground is Gaskell S. Jacobs, consulting engineer, San Joaquin Light & Power Corporation, who obligingly consented to pose with the three lovely ladies shown. A more careful scutiny will reveal these charmers as the cardboard figures of the Westinghouse and Mazda lamp advertising program